



ESSAYS

ON THE

FOLLOWING SUBJECTS:

WEALTH AND FORCE OF NATIONS,

AUTHENTICITY OF OSSIAN,

ACCOMPANYMENT,

EXISTENCE OF BODY,

FORTIFICATION,

BATTLE.

O

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EDINBURGH.

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M,DCC,LXXXV.

Mr. McDonald
from the Author



E R R A T A.

Note to pag. 25. line 10.

Even considering money as fixed capital, it can cause production as the addition of any other sort can; and, besides, can cause the production of any sort of fixed capital or commodity that is wanted.

Pag. 78. Before the words “The opinions answered above” there ought to have been a break * * * * for the expression refers to the 7 Sections.

E R R A T A

Page 95. *for* terms of phrase, *read* turns of phrase.

101. *for* study of words, *read* study of wounds.

157. last line, *for* I think, *read* If I think.

158. first line, *for* not because, *read* It is not because.

170. *for* Landucy, *read* Landrecy.

Do *for* que a pas, *read* que ce pas.

for Cochorh, *passim*, *read* Coehorn.

172. *for* Landeberg, *read* Landsberg.

Do. *for* Aix, *read* Aire.

APPENDIX

THE HISTORY OF THE

REIGN OF THE EMPEROR
KANGHI, FROM THE YEAR 1644 TO 1722
BY THE REV. JOHN BARROW, ESQ.
OF THE EAST INDIA COMPANY'S SERVICE.

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O B S E R V A T I O N S *

ON THE

WEALTH AND FORCE

OF

N A T I O N S.

* This was first printed in 1781.

TO THE
MEMORY
OF
DAVID HUME.

“ Say, shall my little bark attendant fail?”

THE HISTORY OF THE

REIGN OF

THE GREAT

AND

THE HISTORY OF THE

REIGN OF THE GREAT

OBSERVATIONS, &c.

*Of Nations supposed to have no dealings
with others.*

THE expence, annual (for instance)
of a nation, is supplied from its in-
come during that period, and the savings
of former years. Whatever a man believe
to be the first, a few lines will hold his
account of the second.

Progress

Progress of Wealth.

IF a man proposes to make a piece of clothing, an ornament, or a weapon, he must lay in food to subsist himself while he is about it. If he employs another man to furnish him any such things, he must give him food, if he has it not of his own. What was once a luxury, is, in process of time, held a conveniency, and may afterwards be held a necessary. Now, it is the same thing whether a man gives another articles, or the food to subsist those who make them.

Income Annual (for instance) of Nations.

THE first attempt to ascertain this, worth mentioning, was made some little time ago
by

by Quesnai, first physician to the King of France. It has been supported by many respectable men. His opinion was, the income of a country was its commodities, with this limitation, that artisans added nothing to the national income. They did not produce the materials they worked on. The society, therefore, received by their labour only one sort of commodities instead of another necessarily consumed in fabricating it.

The next is that of Doctor Smith, imagined, I believe, without any assistance from the æconomists, though not published till very lately. It is, ‘ That the annual revenue of every society is always precisely equal to the exchangeable value of the whole annual produce of its industry ; or rather, is precisely the same thing with that exchangeable value.’ For *rich* is the word by which we express that a person or a nation has many commodities ; and whatever opinion may be entertained
of

of human capacity and steadiness, few fabricate what is not of some use to themselves or others.

A man bestows any income on any number of people: It will not be disputed that the income he gives may be the same, whether they live in his house or not; whether they fabricate any thing for him or not: That he may get the same work done by them, whether they live in his house or not. Supposing, now, on the one side, that they are absolutely idle, and, on the other, that they do more or less work for him: In this last case, he has, from any income, the same benefit as if, in the former, he had the same income, with as much more as would procure the work. Supposing a man gets any quantity of work done, and another gets the same work done for less income, this last is, for the time, in respect to the former, in the same situation as if he had as much more income as
the

the difference of income bestowed amounts to.

Supposing the income the same, and that work can be got for the same price, it will be held a matter of indifference whether the work is executed or not.

But who are the employers? What I have said in the former Sect. leads me to think that all others are employed by the holders of the food.

If it is observed, that the more government takes from any class of people, the less it has for itself, and the less it can give others, it is of little consequence to a country whether the government states its income to be the food; or the food, with some articles held the most necessary; the whole produce of the land with the economists, or even with Smith, the produce of ‘all the lands and all the labour.’

Hoard.

Food, clothing, lodging, amusement, show, war, medicine, and travelling, with the instruments used in providing them, are all the commodities of any country. In the following observations, I consider the national income, the condition of the people, and the revenue of government, in nations where the labourers are free, and business carried on by persons who advance their capitals. The reasonings do not depend, on my opinion, upon the income of nations: I explained it at so great length, chiefly because it showed a method to study the science.

Variations

Variations of the income Annual (for instance) of Nations.

THE quantity of commodities in any country is greater or less, as the people are able and willing to produce. Their ability and inclination may be such, that the wealth may go on increasing, till it reaches its greatest possible height; may continue long the same; may diminish for a long time; or a flux and reflux may take place; on the balance of which, in any period, it is found to have increased, to be the same, or to have diminished.

Few, if any, are equally fit for business the whole time they continue in it. Some may know more, attend more than those whose places they fill, and increase their capital; others may be only equal to their
prede-

predecessors, and keep their capitals the same; others again, may know less, attend less, than those who went before them, and are not able to keep up the capitals they received. Differences in the qualities of the labourers may also have an effect.

No art, once made public, is lost, the danger, expence, &c. of which the employers are willing to reward, and the employed to risk; discoveries are continually made; the capacity of men, as well as their knowledge, increases; and, when men err in chusing their projects, they usually err on the safe side.

The increase in the production may begin from the holder of the food (for example) wishing to secure his subsistence, or get some particular article; or he who otherwise would not have exerted himself,

is

is tempted by the articles the artisan lays before him.

The narrower the competition in the sale of any commodity is, it may be expected that those who produce it are capable of less exertion ; that they will exact less work from the labourers they employ, and be more indifferent about the quantity of it : The labourers, therefore, are less skilful, dexterous, and less able to bear fatigue.

Men may voluntarily produce less,

FOR fear of not getting sale.

Finding, or presuming, that a quantity of goods, sold at a higher price, gives as much or more profit, than a greater quantity sold at a lower rate.

The

The uncertainty how much of the fruits of their labour they will be deprived of, the hopes of having warning for one, five, twenty years ; the fear of quarrels : These may affect their industry for ages.

*Of the Labour of Soldiers, Menial Servants,
&c.*

IF, instead of ten persons (for instance) twelve of equal skill, dexterity, and industry, are employed in producing commodities, there must be more produced ; that is, in the view I place things, the difference, as far as employed in some occupations, augments the income ; employed in others, the income does more.

The income that supports persons of such occupations, will support artificers.

The

The increase in the production, will not follow immediately upon the increase in the number of hands employed in productive occupations.

It may happen, that there follows no diminution of commodities from even a considerable diminution of hands.

The national income may be the same, whether the portion of it laid out on persons of such occupations, be bestowed on troops or footmen.

Cheapness.

MANY who would not give twelve days labour for an article, would be tempted to exert themselves, if it cost but six.

Enterprise.

Enterprise.

OUR daily observation, and the accounts we have of the different countries, defective as they are, entitle us to conjecture,

That a nation may advance more quickly than some who must make exertions absolutely greater ; and that it may keep an even pace with others.

That a nation may go on equally with some whose situation is easier than its own, or may get before others.

That nations whose situation is equal, may advance equally, or that some may get before others.

Where

Where the government is not mixed, and the competition is open, we may expect to find almost the whole of a nation of the one character, as far as the communication is open.

As European nations now are, I think increasing the difficulties would retard.

Hoard.

COMMODITIES are employed,

As capital.

As income in producing commodities.

As income in rewarding unproductive labour.

C

People

People consume the clothes (for instance) they have ; government its arms, &c.

It is well known to what a degree the droughts in rice countries, insects in others, drift ice in Iceland, &c. render the reproduction of food precarious.

Government may put together its hoards of military stores in one year, (for instance) or gradually in ten. So it may any hoards of food it makes for armies, &c.

Of the Extent of Capital required to carry on National Business.

SUPPOSE two countries, of which the produce (for example) of the land, in the year (for instance) is equal ; that, in the one, the whole is in one crop ; in the other, in two equal crops ; and that, in it,
the

the payment for the first crop comes in soon enough to carry on the cultivation of the second. In the former, it is visible that twice the capital is required to produce the same total.

I have not endeavoured to calculate how small a capital may employ the artificers of any country.

Suppose two countries, of which the sales are equal; that, in the one, the accounts are paid in six months; in the other, in twelve: In this last the merchants must have twice the capital.

Division of Capital.

WHETHER the capital be divided among ten, or among forty men, so much of their profits as are not added to their capital, will equally give income to the people.

The

The former are more tempted to rival any superior orders that may be in the state.

The competition among the latter is stronger than among the former. From particular accidents, indeed, the competition among the ten may be sometimes as strong, or stronger, than among the forty ; but we cannot expect this to happen often, or to continue long.

Of Fixed Capital.

IN inclosing a field (for instance) with a wall of stone and lime, more capital is dissipated at first than if it is inclosed with dry stone, and more capital is dissipated afterwards, in keeping up the last.

Shipping are a fixed capital, that cost much in building, in keeping them up
while

while they are worth repairing ; and they are sometimes totally lost.

Diminution of Money Capital.

IT may be of great consequence, what proportion in production is effected by fixed capital.

In Britain (for example) the farmer (for instance) can raise but one crop of corn in the year.

Suppose that there are some years to run of the lease of a farmer (for instance) the fall in the price may lessen his capital considerably, before he gets such a deduction in his rent as the change of affairs requires.

Money.

Money.

DAVID HUME, with the perspicuity natural to his vast mind, has showed, how an addition to the quantity of money increases the production of a country ; and the bad effects of a diminution in the money. And Dr Smith has represented it as a kind of fixed capital.

I propose to begin the comparison of the effects caused by bringing more signs to sale, with those caused by bringing more consumable commodities ; of the effects caused by a diminution of signs, with those caused by a diminution of consumable commodities.

All these may affect the fixed capital of the nation.

Few

Few chuse to let capital lie long idle.

Where the income is at its greatest possible height, the commodity introduced, if sold, can only hinder the sale, or lower the price of others in competition with it: The effect must be the same, if it causes no production.

The addition of consumable commodities causes production,

By keeping labourers more employed.

By increasing the labouring hands.

Causing exertion among undertakers, by lowering the price of commodities.

The production caused visibly may be various; except from rash project, it cannot be more than the production sells for.

The

The addition may cause no production,

If it increase not the number of labouring hands,

If it employs them not more fully.

When sold to undertakers, it does not tempt a certain exertion. Though it causes none one year (for instance) if continued, it may.

The effect is the same, if it causes no production.

When the income is at its greatest possible height, the addition of signs can only lower the value of the signs already in circulation.

The addition of signs causes production,

By

By the price of labour not rising immediately in proportion to the addition.

The addition causes no production,

From falling into the hands of people unwilling or unable to effect it.

The production can go on, while an addition of signs procures more labour; which will be, till the proportion of signs and commodities is the same, as among the other signs and commodities in the country.

The proportion, therefore, of the sign to the greatest production caused by it, is the same as that of the money circulating in a country, to the money price of all the commodities sold in it: This may be various; but the quantity of money in every country is far less than the money price of the goods sold.

A diminution of commodities causes a diminution of the production,

By lessening the labouring hands.

When, in consequence of the diminution, hands are less employed.

Relaxing exertion, by heightening the price of the commodities that would have been in competition with them.

The diminution caused may be various; except from caution, it cannot exceed its price in the commodities diminished.

The diminution does not lessen the production,

If it does not lessen the labouring hands,

If there is still enough left to employ the labourers as they would have been,

When

When it does not relax exertion.

The effect of the diminution of consumable commodities here, is to heighten the price, or cause the sale, of the commodities with which they would have been in competition.

The diminution of signs lessens the production,

By the price of labour not falling so much, as that the signs remaining will employ all who were employed before. In this situation nothing can keep up the price of labour, but the labourers being forced to pay a certain price for the commodities they purchase: That price may be such as to cause a diminution in the number of labouring hands, greater or less.

The diminution of signs does not lessen the production,

If

If there is still enough left to keep all the hands employed as they would have been.

The diminution caused may be various ; it cannot exceed the production that would have been caused by the addition of the signs gone, to the remainder in the country.

It is obvious, that the progress of increase and diminution, however caused, may be regular and uninterrupted, or not ; more or less rapid ; and may take more or less time.

Money, whether metal, salt, or shells, is of so much surer sale, that other commodities rarely perform the office of signs : I have not known one instance of it.

The increase of signs or commodities renders it easier to increase capital ; the diminution renders it more difficult to keep
capital

capital entire, and may render it impossible.

Poverty.

A PART of the national income is destroyed, or its source stopped up; some propose to produce a less quantity of any commodity; cultivators, artificers, &c. choose to employ fewer hands; in consequence, more or less labouring people may be obliged to try new trades, in competition with those established in them, on whom they may encroach more or less. The misery or deaths which follow, have not, I believe, been ascertained in any one case: There may be more or less. Though none may die, literally of hunger, yet no small number of grown persons, and many children, may die of diseases brought on by scanty or unwholesome nourishment, bad lodging,
or

or clothing ; besides, that diseases owing to none of them, lie heavier on persons in such circumstances.

Slaves may suffer less from this than free labourers.

Population.

IT appears that neither the marriages, births, nor deaths, bear a fixed proportion to the numbers of men, nor near it : Nor do the sexes bear an uniform proportion to one another.

A nation may have the same income with another more or less numerous.

Much of the labour done in one country by cattle or machines, may be done in another by human animals.

Suppose

Suppose any income divided among any number of people,

The income may increase, and their numbers remain the same.

The population may increase, while the income rests the same.

Either may diminish, while the other remains as it was.

The people may increase faster than the income, and the income may increase faster than the people.

The people may diminish faster than the income, and the income may diminish faster than the people.

Both may increase or diminish equally:
Both may stand still.

In all the countries we know, almost every man would, from one motive or other,

ther, marry *, if he thought he could have what is, in the idea of the times and country, a subsistence for his family.

Surely the income may diminish so far, as that fewer can rear families.

Where the income has been for some time the same, it is probable most of the people have small portions; perhaps still more generally in such as are far advanced in the arts: in these, the women may earn more, and the children earn earlier.

Of the Revenue of the Government.

GOVERNMENT may take any article from those who have produced it, or from those who have got it of them.

Whatever

* Consider the case of the Lazeroni at Naples.

Whatever part of the income of any class of people government takes, the class has the less for itself; and the others can get the less from it.

Government may either give away the whole again among the people, or hoard a part. However great the portion government takes may be, the income of the nation may still remain the same: Though it may buy dear, or sell cheap; yet those into whose hands it gets through government, may be as able and willing to take care of themselves as other people; but, as it may not bestow its income on those it came from, individuals may suffer greatly.

Many are surprised, that a man of any moderate understanding should not observe, that income would circulate through the nation from the hands of the subjects, as well as from those of the prince; and that the outlays of the prince would circulate as well, if bestowed on canals and highways,

ways, troops and military stores, as on palaces, gardens, and agreeable attendants. Such has been the progress of man in every inquiry of fact and existence.

As soon as additional rent can be afforded, government, in some cases, no doubt, ought to take it; in others, it ought to abstain for a longer or shorter time.

Where the subjects know not how much of the produce of the land (for example) government shall exact, some may enterprize in hopes of defrauding the government, and are disappointed; the national income of the year (for instance) may not be lessened by their enterprize; their capital may; the dispute may cost government something; and the example may lessen the scandal attending injustice and fraud, where government is concerned.

An excise on a commodity may be a tax on the rent, on the tenant, on the producer,

cer, on the labourers employed in producing it, or on the consumer, as accident determines. Labouring persons are the least able to hold out in combination, from their poverty and their numbers.

It may happen, that the salary paid to working people, though perhaps not the price of labour, is by such taxes raised so, the national income not increasing fast enough, that for several there is but a scanty subsistence, and for some none.

Laying an excise on a luxury may cause less of it to be produced ; but, it has been observed, that most men are not induced to quit their country but by very great difficulties. Such a tax may retard the advances of a country, by raising the price of the article ; for what does not allure one, may allure another.

Even in countries which have not reached their greatest possible height, if, instead
of

of laying on the whole in land taxes a large sum were laid on luxuries, I believe that the small proprietors would almost always, in the course of a life, have more to themselves, after paying what they chose of the excises.

The greater portion each person has of the national income, the more government can take from him. A tax on the necessities of life will hinder people from breeding, if high enough.

Suppose a nation has an annual income, which we shall phrase twenty millions. Suppose another nation of only half its numbers; but which, by superior art or industry, has the same income. Suppose in both the income at its greatest possible height, keeping war and pestilence out of the question.

Perhaps, by laying a poll-tax in smalls, by the week (for instance) a considerable
sum

sum might be got, without much oppression, of the most thoughtless; at worst, government might make use of it, to get at the income of those who would not consume the commodities it chose to tax.

Of Bounties, Regulations, &c.

It may happen, that the industry of some part of the people is employed in objects less beneficial to themselves and the state.

In any art, useful methods may be known in one province that are not known in others; they may be borrowed from foreign nations; discoveries may be made: These, however valuable, may be adopted but slowly. I do not know whether men will ever be able to prove that the skill of any country is such, that more cannot be done.

Some

Some men, had they capital, might accomplish designs, which would, in more or less time, replace to government an outlay.

The interest of no one class of people is necessarily the same with that of the state. The produce of a piece of ground may be as 20, leaving a profit of 10; or it may be as 16, leaving a profit of 9: The business of fishing may, in some degree, admit similar variations; the artisan may have profit in his business, 10 or 15, as he manages it; production may be effected by machines and cattle, or by labourers paying taxes; while the national income has advanced (for instance) a seventh, the population has advanced a fifth, and the employment of the labourers less secure.

A question will, on these views, occur, what government may gain by bestowing money, or by penal regulations?

The

The more simple the inquiry, the more honesty and simplicity are in the character of the subjects, the less any change proposed crosses their ideas of their own interest, or their vanity; the less the government is disturbed by parties, the less vigour is required in administration.

The outlay may be raised from so many, that each shall not regard what he pays to it.

Giving the aid in one sum may often be very proper; government may give only what it pleases; but persons of the best intentions may fail often in their projects; government may be imposed on, and many may enter more hastily into bad schemes, or indulge themselves in pernicious expenses, from hopes of having a considerable part, if not the whole, of their outlay replaced by government.

On

On these accounts, it may often be thought proper to give the assistance according to the quantity produced, however great that be. Hurt may follow from discontinuing the assistance given in this manner. The weakness or corruption in the government may increase so far, that this, too, may be given to such as have not laboured for it.

Government is still more exposed to mistake, in endeavouring to discover what chance it has of changing the direction of national industry, and how much it ought to lay out on such views: It can more easily discover whether the change proposed is beneficial, at least to such a degree as to make it proper in it to venture.

Premiums are given merely for discoveries in the arts; the expence of them is supposed to be a matter of indifference to the state.

Such,

Such, however, has hitherto been the frame of man, that, if a rule were to be laid down over the whole world, for ages, there is no room to hesitate a moment in deciding, that government ought to interfere no farther than to give its subjects security in their property ; all the confidence possible, that they shall enjoy the fruits of their labour ; prevent all restraints on competition in the production ; make these works that private persons would not, or could not do, as roads, canals ; and reward discoveries in the arts.

The more profit any person makes in his business, the more government may get from him ; on the other hand, the wider the competition, the more each man strives to produce as much as he can, as good as he can, and as cheap as he can. Cheapness may, besides giving the government, by different ways, opportunity to increase its revenue, make the revenue more valuable.

About a century ago, pecuniary encouragements were offered in France to marriages contracted so early as twenty years. A man who had a wife and the prospect of a family, may be expected to exert himself more: When the young ones born in consequence are grown up, the fall of labour, from the greater number of labourers, and the invention of these more quickened, enables the undertaker to execute more project with the same capital. If many marriages followed in consequence, there must not only more children of the poor die, but a greater proportion of them, if the increase of exertion of the parents, and the aid of government, did not prevent it. The aid here was an exemption from a pernicious tax; a small sum, not a reasonable encouragement to marriage.

Where the aid is given to such as would marry without it, as well as to those who would not, which was done here, there is no reason to expect that the benefit will compensate

compensate such an out-lay. To discover, all, or nearly all, who would not marry without the aid, is perhaps the inquiry, of all others, in which government has the least reason to expect success. As France then was, it is probable that even the vigorous administration of Colbert was no way equal to the task *.

A case may be supposed, in which people ought to be had, in case of wars or contagious distempers. I know no country in which it has been proper to lay out any thing on that account.

Of foreign Trade.

I STATE, on one side, the class of artisans, and, on the other, those who supply
every

* I have sometimes suspected that this edict was only a stroke of court address.

every article of expence that itself does not make.

It is more advantageous for government to have both sides of the exchange in the country than only one. It can chuse where to lay its taxes ; whence to levy its troops ; even the command of the greater number of people for this last use, may sometimes be of the utmost consequence.

Case First.

THE exchange of commodities produced by either class in one nation, for those of the same class in another.

Case

Case Second.

EXCHANGE of the artizan commodities of one nation for those of the other class of a second.

The demand for the commodities of one may be more steady than for those of the other.

The commodities of the one class may be of more use at home, upon a stagnation, than those of the other.

On a rupture, the effect of the greater command of necessaries may be great: Government can always find people able to make arms.

Either

Either may come to have both sides of the exchange, within itself, sooner than the other.

It is better in the monarchies of Europe, and even in the greater republics, to tax rent, than profit of capitals.

Artisans within a country have such advantages which foreigners have not, that they cannot fail to draw to themselves, in the end, any business they aim at, if the country produces the materials they work on. In the great nations of Europe, the national income is increasing ; taste changes continually ; novelty pleases. Some commodities, and the materials of some manufactures, are confined to certain countries by climate ; the weight of correspondence, stock, and skill, is great ; so that foreigners still sell much to all of them, and would sell more, if they were not restrained.

Cafe

Case Third.

THE above, with what I have said on mines of money metals, in my remarks on the home trade, show all I have to say on the money balance.

Restraints on Importation.

PEOPLE who must struggle through a great competition to make money, will be less apt to throw it away than those who see they have few rivals.

Bounties

Bounties on Exportation.

THE bounty may lower the money price of a commodity.

More of it being produced, the exportation, and the apprehension of it, having less effect than the greatness of the quantity brought to market. I have heard no proof of a single instance of this, though it must have happened.

The increase in the production may be caused,

By drawing capital from other employments. When interest is given for loans, (*i. e.* almost always) nobody keeps his money in his desk.

Employing

Employing as capital, circulating or fixed, what would have been employed as income.

By exerting more skill or industry.

It has always been proposed to give this bounty on the production, no matter how produced ; it therefore tends to improve methods, no more than many other equal spurs to industry.

If the production is caused merely by force of capital, and the price of the commodity is lowered, the capital may, sooner or later, be lessened ; and continually lessened, till it be dissipated.

Will the production caused by the money balance gained by the bounty, often make up to government the revenue it costs ?

G

Many

Many will exert themselves for the forced, that would not for the natural price. Others will be confirmed in their inactivity and bad methods, by the greater probability of sale.

People go most readily into the employments that are nearest their own, as the farmer into the gardening, the weaver in wool into weaving flax.

Regulations on importation and exportation may hinder variations in the price of a commodity : Bounties on both hinder less ones : To discover when the advantages of such bounties compensate the expence, and what expence, requires nice information indeed. It may safely be affirmed, that not a man in Britain has ever possessed it in any one case.

Comparison

Comparison of the Foreign and Domestic Trade.

LESS time is required to bring in the returns in many branches of the foreign trade, than in many of the domestic ; but more time is needed generally to bring in the returns when the sale is made abroad, than if it had been made at home.

It is better for a nation to have the same amount of employment, by people within the country, than by foreigners, as the employ is exposed to fewer causes of failure.

Observa-

Observations on the Force of Shepherd Nations against the standing Armies of Nations farther advanced in Society.

I.

WE may expect less patience in shepherds than in the others, and also less acuteness in their designs.

II.

Methods of fighting abandoned on the best grounds, may have great success for some time, because the manner of opposing them is forgot; but, when one of these has had success much taken notice of, an effectual way of opposing it, is sooner or later found out; in process of time it is discovered that the method of fighting
must

must be varied more or less, when the methods made use of by the enemy are different.

It is probable that barbarians will be found less liable to panic, except those rising from superstition, than civilized troops; particularly from being opposed by methods unknown to them. In course of time it is found, that exercise before the war, and patience in the beginning, will prevent the panic.

Attempts openly made will succeed often, even with shepherds, from the very idea of the boldness necessary to make them. It is discovered that troops whose minds and limbs have been occupied on these, will easily disappoint them.

A standing army, which never has seen the face of an enemy, may often do great things, merely because they do not know but that they are done every day.

It

It is allowed, that fortresses are of no use but to hold magazines, command roads, rivers, canals, or make it easier for armies to command them ; the expence bestowed on feeding them must be great indeed, and improper, except from the view of foreign aid, if they can hold out long, after the country is ruined.

III.

Hunting nations, when they can be trusted, are by far the best scouts. A civilized nation might make great use of shepherds, particularly riding nations, to lay waste an enemy's country. If the Russian court apprehended the loss of much power or territory, it would, without scruple, let loose their Cossacks, &c. What devastation could the peasants of Germany do, in comparison to these, under the direction of Russian officers ?

IV.

IV.

War, as other arts, is continually improving ; the capacity of men is so too. Yet, from the good sense, humanity, love of quiet, aversion to fatigue, selfishness, fear of encountering dangers which are new, the want of epidemical passions, and of blind prejudice in favour of one's self in its people, a nation, in the last stages of society, may be conquered, province by province, or perhaps even at once, by any shepherd nation that chuses to attack it. No art, by which a reward of wealth, rank, or fame, proportioned to its difficulty, &c. is not gained, will be followed by many. There seems to have been a progress of fraud in the management of the pecuniary interests of government.

Among people so warlike and active as the Europeans, chivalry must have retarded the progress of civilization ; it added to
the

the causes of war *, and of diverting from luxury people little addicted to literary amusements of any kind.

A particular Case.

It has been said, that the Prussian empire is upon diet ; that the British empire is in that state in which the physician allows his patient to do what he pleases, will be held by many of those who consider all the circumstances of its condition.

There is no harm in my printing an inquiry, whether a scheme be not the best that a bad situation allows. It is, to drop the fleet. We are at war with a combination far superior to us in power. Though, by the whim of human affairs we should
get

* The hurt of private war is well known.

get out of this, with little or no loss of territory, we must expect to be soon in war again. War adds little to our taxes ; our country is not the seat of it ; we are republicans, cut off, in some measure, from the world ; no wonder if we are readier to enter into war than any other people. The wars we have begun, merely to get a choice of markets to sell goods, are well known. The expence laid out by the French and Spaniards on their fleets, shows they are resolved to defend their colonies, and makes it probable they will persist for some time in schemes depending on naval force. Have we any title or reason to expect that they will leave us any thing they think themselves at liberty to take ?

The grandeur of the French monarchy seemed to dispense it from the precautions necessary to other powers : But may not a minister arise, who will sacrifice connection enough to give the monarchy the ef-

H

fect

fect that its wealth, and the character of its subjects entitle it to ?

It is more difficult to form troops in Britain than on the Continent ; and the disposition of Parliament, the army appearing less necessary to us, led ministry to make use of military command as rank and pension *. When the army was more necessary, ours might be little inferior to those of our neighbours : The country could now maintain a great one.

It is probable that few capitals would quit the country. In some countries, the rank of a merchant is less honourable, as is that of a subject who has no power at court ; many would think a subject of the British government a higher condition than the subject of a simple monarchy ; in others

* In the late trials of the two Admirals, the fleet, after every allowance to be made for party, and for newspaper manoeuvres, made an appearance that was little expected.

thers the profits are less, and they would have to contend with abilities more sharpened than their own ; in others no more sale than at home ; in all they would be strangers, and in some find their countrymen their competitors ; stock could nowhere be so easily managed as at home. Some capitals would perhaps be taken or forced out of the shipping business with loss *.

Restraining Ireland made the employment more certain : The Irish could buy more soon after the restraints were taken off : Few have full grounds to guess whether they would buy more from us or not, except court dresses, which the sovereignty of the King would secure. How far the
influ-

* On the different employments of capital, on foreign trade, and money, I refer to what has been said by Hume, Smith, and above. As to the rest, those who entered into such trade as we were in, would one way or other make room for us.

influence and example of the court would extend the consumption of British dresses among the middling classes of people, not many have a title to conjecture.

The exportation of ships, iron, &c. from America, would probably not be restrained.

The other commodities we get from the Colonies and the East Indies are such, that, even in this country, the influence and example of the court would limit the use of them to very narrow bounds, without any regulation. If such as our country did not produce were entirely prohibited, a very moderate exertion would hinder any importation worth noticing. The muslins, sugar, &c. sold us by foreigners, would surely be as proper a subject of taxation as the sugar, &c. sold us by ourselves. If drawbacks were then given, it would be for reasons on which no stress is laid at present. We should then have a wider
market

market to buy most of these commodities in, and in no case a narrower.

From the ruins of the Mogul empire powerful states have risen ; war is improving in the country, which, besides, has been long polished. It cannot be expected that the distance of India should not affect deeply the condition of the people, and the management of the revenue after it comes in. The bulk of the Whites, and some natives who were in favour, or expected it, might, perhaps, for a long time, prefer the distant government ; it is more certain, that almost the whole of the natives would prefer an independent one in the country, even a White and a Christian one.

Accordingly, the military force sent over, has always been small, and sent by stealth.

Leaving the territories in the hands of the Company, government might draw
some

some money from it, and reward some servants, by giving them or their friends places in the country ; taking them into its own hands, it could reward many more, and draw more money, or the same money with less oppression, as its management would probably be more vigorous than that of the Company ; threatening to take them is a middle way. When government had more to give, its servants would crave more. How much would the high price be lowered, when the fund which afforded it was greatly lessened, or lost ?

Without any dissertation upon the quadrille party on the Continent, it will be allowed, that there is no occasion for our interference to stop any preponderating power : When there shall, the more rest we have, the more we can do.

The longer it is deferred, the more our burthens are increased.

The

The increase of the national debt may lead the people to wish for monarchy, as the only chance they have of getting rid of it.

Confined to Britain and Ireland, the situation of the King would be more enviable than that of any monarch in Europe.

If undertaken, it would be easily executed.

Why not undertaken, and that immediately ?

* * * * *

Hic multa desiderantur.

When I read the within, I am tempted to think, that I too am a painter; but,
when

when I confider that expectation has been analysed, I relapse into my natural fcepticism, and rest fatisfied, that,

De las cosas mas seguras

La mas segura es dudar.



OF THE
AUTHENTICITY

OF
O S S I A N.



O F T H E

AUTHENTICITY OF OSSIAN.

I PROPOSE only a few thoughts on this subject, without pretending to decide the question. They are the ideas of one who never saw any of the supposed Gaelic copy but what M'Pherson has printed, and the Episode which introduces the Fourth Book of Fingal, with two not inconsiderable variations, addressed to a person very different from Malvina.

I.

THE ideas are those of a great poet.

This

"This has been denied, because of different circumstances.

A mode of expression which is not used either in English, French, Italian, or Spanish, ' *the tree of the rustling leaf* ;' ' *the fields of my rest* ;' ' *the bed of thy repose* ;' this is much used in the Gaelic.

There is no language but has modes of expression which appear to a certain eye, or to all eyes, on some occasions, ridiculous, if the words of another language are thrown into them. Translate word for word into English the phrases, ' *qu'il suffit d'un fanatique pour* ;' ' *Le propre du fanatisme est d'echauffer les têtes* ;' ' *Quelques personnes proferent des paroles indiscrettes et violentes* ;' yet these expressions are constantly used by the most classical French authors. We know but little of the Latin language ; yet, it cannot be denied, that many passages of the *Epistolae Obscurorum Virorum*, and Swift's *Latinitas Grattania-*

na are ridiculous, merely because we know the mode of expression is that of a modern language, and are sure it is very different from the Roman.

In the Gaelic, the expression ‘ field of my ‘ rest,’ or ‘ my field of rest,’ is (for instance) preferable to that ‘ field where I rest,’ as it expresses the same idea in fewer sounds and in fewer words.

II.

IN tracing the different steps by which language arrived to what it now is, Smith found an employment not beneath his genius; many respectable men had failed in it; much less genius is required to gain one or more of the steps: In polished times people are pretty much tied down to what was made in times less refined. Accordingly, one cannot examine a page of the best books in English, French, or Italian authors,

thors, if he does it in this view, without seeing that the language is scarce any where what one would wish it, in any respect. Each has faults in idiom, figure, and construction peculiar to itself; and the idiom, figure, and construction of all are confined by custom within too narrow limits. In all of them, too, one is forced to use many more sounds and words, on almost every occasion, than he would wish if he studies the matter ever so little. The Latin is, in this respect, far superior to any of the languages above mentioned; yet, even in writing history, Tacitus found it sluggish. This fault must be still more felt when one speaks in public than in history, and yet still more in poetry. In poetry, it will be more felt in figured than in plain style, as that may very easily be too long; in general, where the mind is most to be moved, the passage would gain most by being in few words and sounds.

It

It is sufficient to cite a few instances.

The first is from the address to the sun in Carthage, ‘ But those thyself movest alone; *who can be a companion of thy course.*’ The phrase in Italics is much longer than one would wish.

The other is from Lathmon; ‘ Ossian rush’d forward in his strength, and the people fell before him; *as the grass by the staff of the boy, when he whistles along the field, and the gray beard of the thistle falls.* But careless the youth moves on; his steps are towards the desert.’ The same may be said of this.

III.

The best critics of France confess, that their language, as to sound, cadence, and turn of expression, is, as they express themselves,

felves, extremely profaic, as well as monotonous.

IV.

The poet and all his perfonages are uncivilized.

This is no proof that a work is bad of its kind, though it may be true that its kind is inferior. Mixing much in civilized life, confidering little or not at all any but the ideas of fuch a ftate of fociety, employing a good deal of time in writing in thefe ideas, attempting feldom or never to imitate the ideas of uncultivated life, may eafily hinder a man from entering into the feelings of a favage.

V.

V.

The frequency of his similes and figured expressions is insisted on.

The poco piu and poco meno of these in their numbers, or in each part, will not be agreed on by writers; the oratory of the North Americans shows them to be not unnatural to savages; and as the Whites are superior to any other breed of human creatures, it is no violent supposition, that the oratory of at least some varieties of Whites has been also much figured.

VI.

That he has made the sun, moon, and stars dance the bowling green.

First, as to the uniformity of his images, Dr Blair, in one of the best pieces of cri-

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ticism

ticism we have in any language, has shown that there is not at all in them that uniformity that has been alledged. The number of objects employed is small ; but they are placed in many different views.

Next, as to the propriety of them, Dr Blair, in the above mentioned dissertation, has seen all that was to be said on this subject. The use of an image is to make an effect greater than a plain narration would do ; and they have often been employed with approbation, where, I confess, I could see no other effect than bringing to rest the excited imagination. It is, therefore, indispensable that their effect should be of the same kind or species with that of the object to which they are subjoined ; but, if this is observed, it is obvious, and authorised by universal practice, that a considerable latitude may be allowed in the resemblance. Two instances will show that Ossian's images rarely fail in this point : *' As roll a thousand waves to the rock, so Swaran's host*

‘ *host came on ;*’ Fing. B. 1. ‘ *Nor my soul*
‘ *careless as that sea which lifts its blue*
‘ *waves to every wind ;*’ Oethona.

On the latitude allowed in frequency or in structure of images, I have said above all I need say here.

The principal circumstance is the ideas presented to the mind.

VII.

The want of versification in the English appears as a defect of the first magnitude. The principal parts of a piece are much improved by good versification, which also renders the inferior parts more agreeable or less tiresome ; besides, that there is more difficulty overcome.

There is certainly a pleasure in seeing difficulty overcome ; this circumstance,
how-

however, ought not to be put in competition with any difference worth mentioning in the other articles.

Good versification has certainly an effect of the same kind with imagery; yet, notwithstanding the license permitted to increase the conciseness, is the whole in capital passages often equal to what might be attained, with less labour, in prose, where one has so much more choice? And is not the effect oftener missed? I think that, with regard to the more constrained kinds of versification, as the Italian, heroic stanza, French and English epic verse, with rhymes, the matter is very clear. The strict form of the stanza and the rhymes are remains of those monkish and Gothic delicacies which are now every where abandoned, they are of the same species or effect with the others, differing only in degree.

It

It is a real loss, that the close of the stanza and the return of the rhyme, should be perceived ; yet they generally obtrude themselves. This constraint and labour, therefore, is submitted to for a sound that, at best, should not be heard, but whose usual operation is lessening the effect. Even in English blank verse it is a loss that the end of the line should be perceived merely as the end of the line *. The effects of a greater choice are perhaps still less to be dispensed with in inferior passages. This directs us to an irregular versification, which has more advantage from sound than that strictly regular, and in which, at the same time, the writer has much more choice. But, tho' such verse has more advantage from sound than either regular verse or prose, yet the latter has still somewhat more choice. As to the preference, this I presume is like all other cases of matters of taste, where
there

* The observation of Blair (*Crit. Diss. on Off.*) is also just, though the English copy be supposed the original.

there are opposite advantages, that a considerable latitude must be admitted. (Vide Hume on simplicity and Refinement.)

It were proper, in these critics who think that the being in prose makes so much against the English copy, to suspend their judgment of the Galic copy in this respect, till it appear.

The opinions answered above may appear extremely superficial; such as they are, however, they have determined eminent men. It may seem trifling to wish that a capital passage of Tasso (for instance) was put into *such* French prose as the opening of Fingal chose, as being feeble, is put into, in the *Questions sur l'Encyclopedie, article, Anciens et Modernes*.

VIII.

The author has not evaded minute strokes, as the author of Phalaris's Epistles has done, but enters into painting as minute as any in most works, and has preserved the utmost consistency in the painting.

IX.

Blair observed, that the imagery is drawn from a few objects, all of uncultivated life, which are placed in several different lights; that this invention is of great ability; it is quite consistent with the savage state; it is so different from the practice of polished ages, it was very unlikely to enter into the head of a man in our times; there is no deviation into civilized life; the attempt is bold and executed with success, though a great quantity of imagery is far
beyond

beyond what is used in civilized times, and extremely various.

X.

Whatever grounds for the mythology might have been found in the Highlands, there is none resembling it in books, only some strokes in the Old Testament, a book not likely to be taken for a model.

Milton's failure in that his devils, angels, and the Almighty, are but men, if one or two strokes on Satan be not excepted, had indeed not been observed *, but the character of the age is not favourable, either to the production or reception of mythology. The character he had to assume was extremely favourable to both. But he saw that, in the sublime, there is indistinctness. All the various and numerous

* I have no where met this remark ; but I think it requires only being made, to be admitted.

rous paintings are amazingly executed, and in the simplicity of a savage of great genius.

XI.

Blair has observed another circumstance which strongly marks times greatly more rude than ours. ‘ No artful transitions ;
 ‘ nor full and extended connection of
 ‘ parts ; such as we find among the poets of later times, when order and
 ‘ regularity of composition were more
 ‘ studied and known ; but a stile always rapid and vehement ; in narration
 ‘ concise, even to abruptness, and leaving
 ‘ several circumstances to be supplied by the
 ‘ reader’s imagination.’ Every one would not notice it, and very few could support it.

XII.

The want of abstract ideas, so decisive a mark of rude times, did not escape the acute observation of Blair. Though Condamine's voyage was printed many years before M'Pherson's first publication, yet there was no mean sagacity in making use of it. It is extremely difficult to abstain from these through the whole length of such a work ; yet this is done in such a manner that the whole lies within the imagination of a Peruvian, in whose language, says Condamine, though it admits, in a great degree, energy and elegance, there is no word to express *Time, Duration, Space, Being, Substance, Matter, Body, Virtue, Justice, &c.*

XIII:

XIII.

We cannot but admire the talents that could support, as he has done, through so large a work, the character of a great savage poet, painting, minutely, in the shackles of an imagery, a train of composition, and an extent of idea so different from those of civilized times, let him write ever so much at his ease, but still more if he was disturbed by consciousness of deceit, or other occupations *.

The question comes, then, whether his other writings show poetical and historical talents equal to such a performance?

On it I shall say nothing.

If

* *Alzire* is a great work ; but the Indians are more Europeans than Peruvians. There is only one article in which they resemble the savages, that their passions are somewhat less restrained than the others. Yet the parts of the Peruvians must have been considered by the author, as one of, if not the greatest novelty in the piece.

If it were made to appear that he who could sit down seriously to write the preface, the notes, the dissertation on the antiquity of Ossian, and of that before the second volume, and the introduction to the history of Britain and Ireland, (this last was published some years after Ossian) could not have, in history, the acuteness that appears in the poems, it must be admitted, either that he did not compose the poems, or that he underwrote the other pieces to cover the deceit. This last supposition will seem the more bold, if it appears that one genius runs through these pieces.

If it appears that the preface, the notes, and the above mentioned dissertations, are written as if the author of them did not, in regard to history, understand the poems, the same alternative occurs.

If it is made to appear that the poetry he wrote before, or at the time Ossian was handed about, is such that it could not be
seriously

seriously written by the author of *Offian*, the same alternative occurs. The supposition, that this was underwritten with a view to the other, is the more bold the longer the interval between the appearance of both, particularly if, when the first appeared, the author was striving to get himself into notice.

XIV.

Supposing, now, for a moment, that there was an original composed in the first ages of Christianity, and that this should, in all succeeding times, have been esteemed the principal work in the language: From ignorance, affectation, neglect, and the numberless accidents to which traditional pieces, ever so much repeated, and perhaps, too, from changes in language, this must have come to Mr M'Pherson's hands more or less altered, and in different ways. How much it is difficult to say.

This

This renders single words or lines a very uncertain foundation for conjecture : Vastly more uncertain in this case than in volumes of law, which serve as a rule to the countries they are composed in, which are never trusted to tradition, and which come into the press as soon as printing is tolerably done. If it renders the detection of a deceit more difficult, it may cause an appearance of deceit, though there should be none.

XV.

In composing such a work, one who had much less confidence in his own powers than was necessary for attempting the English copy of Ossian, (not to mention the Gaelic copy he would expect would be called for) might naturally enough think of setting it up against Homer : Yet there is not one attempt at wit in the whole collection,

lection, not even at the pleasantry of a melancholy bard.

XVI.

The generosity of Fingal and others is much insisted on. I inquired so late what opportunity I had, and made so little use of what I had, that I can only say, that M'Pherson is not the first who represented Fingal sparing his enemies.

XVII.

It has been said there is chivalry in the poems.

By chivalry is meant here, that refined chivalry which has been painted in so many histories and romances.

This,

This, with the five following objections, if admitted, would go far to prove, that very little of the work was fabricated by M'Pherson; the more, if they are errors in the strain of the notes, &c. They are all blunders not easily suspected of the artifice which fabricated the poems; for, though every man has weak moments, every man revives, and deceit causes anxiety. But these objections, it is to be confessed, are not well founded.

Chivalry must have come gradually and slowly to its height; all origins, says Hénaut, are obscure. We know not in whose, or in how many countries, its coarse beginnings appeared; whether many countries had not to learn from foreigners, because these were entirely given up, or that they remained the same, or that they were improved so slowly. Here the desiring and obtaining single combats, or combats of numbers against numbers, for mere name,

the

the wishing to be remembered after death to a wife or a young woman, are given, even in English, in such a manner, that they at most only resemble what we may conceive chivalry, in its rudest state, to have been, and very different from what it afterwards came to be. Insisting that this also is done by M'Pherson, supposes that he thoroughly understood chivalry; an addition which will be allowed to be at least too considerable to be dropt.

Besides the chance there was of variations prior to M'Pherson, I heard a poem repeated, containing combats of numbers against numbers, and single combats, which was certainly not composed by M'Pherson.

XVIII.

Here appears a Therfites. M'Pherson was not the first who presented him. In the

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only

only poem I could repeat of the few I ever heard, Connan (the Therfites) desires Fingal to put into his hands a person designed by the word we at present translate King, whom Fingal had spared, after vanquishing him in single combat, that he might take off his head.

XIX.

Cuchullin has a chariot *. It is to be observed, that none of the others use one ; and he appears only in Ireland. I know that M'Pherson was not the first who gave a description of Cuchullin's chariot.

XX.

Mr Gibbon has showed that there is little reason to think that Ossian knew the
name

* Dio (Xiph. lib. 76.) says the Caledonians, in the age of Severus, had horses, and fought in chariots.

name Caracalla. In fabricating the poems, it would be natural to assign, within certain limits, the time they were written in. This would, however, be equally natural in very many of those who transmitted, either by writing or repetition, genuine poems. There is no man but would examine a little the passages he inserted, for this purpose. The few books requisite for the history of Caracalla were at M'Pherson's hand, and the history of the name is no way difficult. Father Bower could not avoid giving circumstances ; but the necessity here was not at all so great as to force one to insert what was scarcely possible, and not at all probable ; for it is very easily seen, that the want of such a particular would not weigh much among the other evidence, external and internal.

My information is so slender, that I only know that there is mention, in traditions, of the Son of the King of the World ; I know
not

not whether he is an imaginary personage, or whether he is not even given as such.

XXI.

In the Dissertation on the Antiquity, &c. of Ossian's Poems, and in the notes, Caros is said to be the same as Carausius, and Caracul is supposed to be Caracalla. Fingal opposed him about the year 210. Oscar, say 70 years after, opposed Carausius, who assumed the purple A. D. 287. Fingal survived Oscar, (Temora, B. 1.); and, though, he felt the effects of age so much, that he then declared he was to fight the last of his fields, yet he appears still far superior to all the heroes; and that in savage life, in such a country, and such a climate.

[XXII.

XXII.

There is in Carthon a strange error. Fingal, in a very superior piece of poetry, sympathises with Cleffamor that Balclutha was desolate. As soon as Carthon's vessels appear, he is known to be the King of Balclutha; the bard speaks to him by his name. In his answer, he gives himself as the heir of those whose dwelling Comhal had destroyed; he is young. Balclutha is placed on the Clyde; Fingal must have been known in, and had some knowledge of these quarters; for, (not to mention the spoils of the Roman conquests, and that M'Pherfon, in a note to the war of Caros, places Hidallan's country in or near Stirlingshire) Comhal and Cleffamor had made incursions into the country seized by the Romans; Oscar had gone to the neighbourhood of the Romans; Fingal had fought against them oftener than once, and was
just

just returned from an incursion. It is needless to say how much Clessamor's affections were still engaged by what had happened at Balclutha. Yet Clessamor goes down without any questions being asked by himself, or any one else, or the least suspicion being expressed, that Carthon might be his son or near relation. Carthon is a work of much enthusiasm; but the error is not only very gross, but of a species M'Pherson was not likely to fall into. In the bard it was impossible. It is to be accounted for most naturally by M'Pherson's keeping to what he found.

XXIII.

It is with a good deal of diffidence I enter upon the specimen of the original subjoined to the English copy. One who hears the language constantly, and hears little in it he can study with pleasure, may, if he is a man of habit, feel a mechanical
aversion

aversion to any new thing that appears in it. I applied to a clergyman in my neighbourhood, a man of taste, who said he was also of opinion that the English copy was superior to the Gaelic.

The Gaelic copy seems to me amazingly contrived to support the deceit. That mode of composition which, as Blair observed, marks times greatly more rude than ours, is carried still further in the Gaelic, though in verse, than in the prose in English. The whole is more concise, too, in some measure, no doubt, from the nature of the language. In many capital passages, this makes the Gaelic copy prodigiously superior. I cannot say, (I am, indeed, no good judge) I have seen above two or three words that seemed English, nor any terms of phrase peculiar to English. If the Gaelic was really the original, it is strange that there should be nothing of this: Some might remain, though some were corrected.

In

In translating such an original as the Gaelic, the hand of a civilized translator could not but some appear, more or less; *Vid. Percy's Rio Verde.*

It seems to me, that the two copies are not farther from, or nearer to one another, than is perfectly consistent with the supposition of the English being a translation from the Gaelic, done by a masterly hand.

XXIV.

Comes Littoris Saxonici is an office of the first ages of our aera. The Littus Saxonicum per Britanniam lies in the south of the island, and the other on the coast of Gaul, opposite to the southern part of Britain.

XXV.

He says little of obsolete expression in his original ; the language of the specimen he gives, and of course, the whole, to a trifle at most, is intelligible at this day, to all who understand Gaelic unmixed with English. This I know is the case with other poems to which the name of Ossian is put.

Though the general mechanism of human passion is every where the same ; yet the particular differences are numerous and considerable, as also their effects.

It may easily have happened, among the various tracts which language takes, that, in a bad country, seldom quiet, where conquest or religion affected the language but little, where foreign models were not imitated, but rather disliked ; and where there was some attachment to ancestors, some time after a language had got into the form we call grammatical, it might remain long while the people continued

rude, without much alteration in the words or structure.

Attempts at elegance, so minute as to affect the words and structure of the language, supposes a degree of refinement.

Though this conjecture seems so safe, that it may appear to be what has generally happened among nations in such circumstances, yet the fact may pass unnoticed; the mere language of people in barbarism does not tempt civilized nations to make dictionaries of it; and among themselves, when once books, even translations, become tolerably numerous, a more minute elegance is studied; foreign books are studied, and then nothing but a most obstinate attachment can hinder the language from changing very much, though it should be affected neither by religion nor conquest. Books and records secure to us the knowledge of the language in all its variations, and an alteration may be imagined so rapid

as

as that they would retard it. But it is not probable that such an alteration ever happened while a people was still barbarous and left to themselves.

In the case in question, the only alteration that I have heard has taken place of late, is the intermixture of English; if we go but a little way back, we can hardly suppose that they aimed at elegance so minute as to affect much the words or the construction of the language.

It does not seem probable that the bards have, for several centuries past, had rank enough to get their changes followed, if they were to propose any. If we go still farther back, we may fairly suppose them to have had less inclination to make any. If a chieftain had any whimsical inclination to change, he would expect little encouragement from the neighbouring tribes.

But

* * * *

But there are also some considerations which favour the suspicion that M'Pherson is the author.

XXVI.

If they had been composed in the Highlands, within these two or three centuries, they would have been forced into the notice of the public as Hardyknute and Rowley's poems, as they would have been composed merely to draw attention. The times before that, Blair has well observed, were less favourable to such a production than the state of society represented in them. Now, in some respects, they may seem not such as we would expect to be done in such times.

Scarce any degree of judgment is enough to hinder men from rating too high the attention due to what has long employed them. The more men are moved by passion, the more they dwell on minute particulars

particulars connected with the principal object. Savages are less apt to study the movements of their minds than civilized men. They have more violent passion, and from having fewer ideas to distract them, they dwell the more on what engages them. Hence the minuteness of Homer's narrative. He tells us when his hero buckles his shoes and ties his garters ; the whole cooking of a feast ; who gets the chine ; not only the detail of every combat between the principal personages, but the wound by which a hero kills every obscure person is given, and with great study of words. It is now insupportable, and would be so, though savages were not the subject. Not to mention the list of the forces, Tasso's combats are now task-reading. Nothing of all this is in Ossian ; the personages are presented only in such light as to interest us ; no more particulars than are, in our eyes, enough to complete the impression : They cannot tire, still less disgust any one who can bear savages at all.

XXVII.

The landscapes are numerous, and done by a master ; yet many, not to say most of these strokes are of a kind, one is tempted to imagine, would have little effect on a savage, even a bard who drew his families from inanimate objects, and still less on his hearers, though they are not the landscapes of civilized times. For instance, ‘ I came
 ‘ to the place where Fillan fought ; nor
 ‘ voice nor sound is there. A broken helmet
 ‘ lay on earth ; a buckler cleft in
 ‘ twain. Where, Fillan, where art thou,
 ‘ young chief of echoing Morven ? He
 ‘ heard me leaning against a rock, *which*
 ‘ *bent its gray head over the stream.*’ He
 ‘ heard ; but, fullen, dark, he stood ;’ Tem.
 B. 6. The same may, perhaps, be said of much of the imagery, not to say the greater part of it.

These

These affect the whole book, and in these the character of a savage poet may seem to be departed from : They are much more delicate than those taken notice of in Sect. 17. 18. 19. 20. 21. 22. They are not more delicate than those noticed in some other sections, and which favour the contrary supposition; but it ought not to be forgot, that it is easy to see how much the book is improved by them, in the judgment of our times.

* * * *

There occur some other considerations, which though of less weight, may seem consistent with the same supposition.

XXVIII.

I have elsewhere (Paper whether the Atacotti were Cannibals in the time of Jerom) endeavoured to show, that it is improbable hunters should have iron. Once when I applied it to this case, it was answered,
‘ They

‘ They got these as the Indians got theirs.’ I have in the same Paper remarked, that it is not natural that Hunters should fight chiefly hand to hand, and that the spear, sword, and shield, should be their chief weapons. Yet, though the shepherd state would furnish many images and strokes for landscapes, we find no traces of it here. It is true I know poems prior to M’Pherson, wherein the arms and manner of fighting are the same as here ; but not to insist that the want of imagery in them causes a suspicion of their high antiquity, or that these arms and manner of fighting exposes themselves to suspicion, instead of helping to clear the others ; the collection printed by M’Pherson, though perhaps in no great proportion to what has passed under Ossian’s name, is still large as well as various. I recollect but three, besides the allusions to the steeds. These last are not decisive, as they are very few, and the denomination ‘ Steeds of the stranger’s land,’ is sometimes used. Of the others, the scene of
that

that in the first and that in the second book of Fingal, is in Ireland, the third is in Caric-Thura, perhaps the most suspicious of all the poems.

XXIX.

It seems strange that Ossian should have made his own father, who was for some time his own contemporary, threaten and worst the spirit of Loda. It is true he was, as Blair remarks, the divinity of another and a hostile people ; but Homer placed his story in remote times. Notwithstanding the excellent insinuation in the last note, that Ossian thought the Gods deserved what they might meet with for interfering in our affairs, the error might easily escape notice in the enthusiasm of composing so great a work as Carric-Thura. The note at the close supposes there are precedents for it. Some things here may seem imitations of

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the

the Old Testament, and set up against Homer.

XXX.

Temora.

In Fingal the succession of heroes is so natural, (whatever may be thought of the episode of Lamderg and Ullen in the 5th book,) as to extend the piece with as great propriety as can easily be imagined. But here Fingal had lost Oscar in the beginning, yet still keeps off, though a most obstinate resistance was to be expected, and a long succession is presented. The error cannot be called a gross one; particularly, if the seven books were written after the bewitching success of the first volume. But Ossian could not deviate much from fact in what had happened so recently, however he might colour.



O N

ACCOMPANYMENT.



O N

ACCOMPANYMENT.

I ENTER only into a part of the subject. I hope, however, what I say will be of use to some of those who can make experiments. I do not attempt to ascertain how the parts influence one another. This, among other things, requires a very nice ear. D'Alembert did not trust his own so far as to enter into the facts which were disputed, when he wrote, (and which, for aught I know, are so still) though they were so material.

If any part in a harmony is once fixed,
whether it be the first, the second, the bass,
or

or any other accompanymments, it regulates all the others within narrower or wider limits, whatever be the principles which guide the composition ; and the choice of these principles does not oblige the composer to begin with one part in preference to another. I shall consider only pieces composed on the principles of Rameau and those of Tartini (Romieu's tract I have not seen) and the very simplest cases.

D'Alembert grounds Rameau's system on two facts. The first, that, if a string is sounded, we hear, besides its sound, the octave of its fifth above, and the double octave of its greater third above. The second, that, instead of any note, its octave above or below may be substituted with little variation in the effect, and that it will make but little difference to sink or raise the whole piece an octave*.

Suppose,

* This fact is not true. Not to dwell on greater variations, it is easy to produce an instance, where, by
sinking

Suppose, now, these facts true, and that they alone influence composition.

Consider, first, a melody composed by one who had no idea of the fundamental bass, and which has been first used without any bass ; such melodies, it is well known, exist in great numbers.

What regulates this melody ?

To this it is answered, that, since it is agreeable, it must have one fundamental
bass,

sinking a whole piece an octave, it becomes a burlesque from being good. One reason of the error may be, that, from its resemblance, the octave so substituted suggests to certain ears the note. (V. Hume's inquiry on human understanding.) I enter not here further into this fact, though it were not hard ; for I find in Rousseau's dictionary, article *Harmony*, that Mr Estévé of the Montpellier Society had shewed, that, ' beginning by this fact, ' there was nothing demonstrated, or even fully established, ' ed,' in the whole system ; and this treatise I have neither seen, nor met with any one who had.

bass, or more, and that bass regulates the melody *.

The next question is, what regulates this fundamental bass ? in its key ? in the pitch it is to set out on ? its first note ? its progress to the close ? and the close ?

What suits the melody best, in regard to these, is chose as its fundamental bass †. Suppose

* Though I confess I do not understand what D'Alembert means by his proposition, that ' *melodie nait de la harmonie,*' yet this answer seems to me the only one consistent with his writings.

† What is proposed in D'Alembert's writings is to show, that, to every piece there is a fundamental bass, such, that notes in the upper parts, whether one or more, are allowed or not according as they suit it on the principles mentioned above. This certainly is not done; but I enter not into that question, because of Estévé's treatise; from the strain of Jamard's and Rousseau's books, I am (perhaps too easily) tempted to think this is the only subject of it. A choice of fundamental basses is evidently supposed. If the above stated principles are the only which influence composition, my proposition would go still further, if it
be

Suppose, next, the fundamental bass fixed first, and a melody composed from it; this is certainly practicable.

In this case, the fundamental bass regulates, within certain limits, the melody.

The music may still be the very same, whichever of the two the composer chooses should regulate the other.

Suppose the fundamental bass made first. A note fixed, and in consequence its seventeenth major set down in the melody because of its sound with the bass, and because the bass is accompanied by another seventeenth major and a twelfth. If the

P

me-

be true, what I think very clear, that, in the fundamental bass, there is no rule of succession but its connection with the upper parts fixed before it; and that these parts, though they might bear to it a constant relation, are not fixed by that, but by their relation to one another, at the same time, that it is proper to remark the former relation also.

melody is made first, the same note fixed as is placed in the other melody, the very same considerations give the same bass, the seventeenth major below; because of its own sound, and that it generates a note the unison of the upper note besides its twelfth. And so on.

Consider, next a part betwixt the two, say a second.

Suppose the fundamental bass made first. The second its twelfth, and the upper part its seventeenth major, because it generates their unisons, and because of their agreement with one another. If the second is first made, the same note fixed in it as in the former case, the same reasons of choice give the fundamental bass and upper part the same. If the upper part is first made, the same reasons give the two other parts the same. And so on.

The same of all the other parts that are added.

Tartini

Tartini forms the bass, by the harmony a chord makes with its aliquot parts, and the attention due to the third tone generated by two sounding together. In his *Trattato di Musica*, chap. 1. is the following passage: ‘ Mi domanderà poi ella in ‘ secondo luogo in qua relazione si trovi ‘ questo terzo suono agl’intervalli rispettivi ‘ da quali risulta. Le rispondo che dati i ‘ seguenti intervalli, de quali è rispettivo ‘ terzo suono il sottoposto, questo sarà di- ‘ monstrativamente il basso armonico de ‘ dati intervalli e sarà paralogismo qualun- ‘ que altro basso vi si sottoponga.’



Suppose now of the first three notes *mi* and *do* sharp given, and that the bass *la* is fixed from

from them, because it is unison of the tone they generate. If the upper part *mi* and the bass *la* were given, and that the same consideration were to guide, this fixes the second upper part *do* sharp, because that is the note which, with the fixed upper part *mi*, generates the unison of the bass. And so on.

And the same reasoning may be applied, though the composition were guided by the principles employed by D'Alembert and those of Tartini together ; or any others.

But what part ought to be first made*?

Surely that part to which all the others serve as accompaniments, more particularly, if the effect is to be produced more by the
the

* It is known to composers that it ought not be attempted to carry on the part without a view, more or less, to the others, though it could be done ; and that it cannot be done though attempted, because any part suggests the others more or less.

the succession of notes, and less by harmony. We can the less expect meaning, if the beginning is made by an accompaniment instead of that part ; and still the less according as the part begun by, is proposed to have less feeling.

If one were to compose a piece of music, in which the bass were the principal part in the expression, there would be the same propriety in beginning by it, as there is now in beginning by the upper : As also, in beginning by any other part which is made the principal in the expression. This will probably be tried one day ; at present it appears not so natural.

I shall endeavour to explain how.

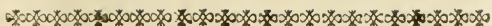
High notes (to speak in the inaccuracy of common language) fill the ear more than the low.

Here,

Here, as in other things, the females have invented little ; their voice pleases us more than our own, and is an octave higher.

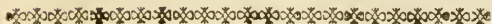
The only other animals who appear to us to have music, are birds ; their pipe is acute, and pleases us.

As making the bass an accompaniment seems to me not to have been done from mere caprice, I imagine that this, and such other things, will be tried, and come into use, chiefly from the love of novelty and variety.



OF THE

EXISTENCE OF BODY.



ON THE

EXISTENCE OF BODY.

THE existence of body must always be taken for granted: Reasonings on it are to be made only to discover the nature of our frame.

It is said that there has been discovered an argument, which admits no answer, to show the existence of body an absurdity.

I presume, that an argument, or any thing like an argument, to prove that body does not exist, is entirely out of our power.

Does body exist?

Q

The

The first question in this inquiry is, whether the mind perceives body?

This point has been made very clear. Sextus Empiricus, (*Sceptical Suppositions*, B. 2. c. 7. and elsewhere ; also *Advers. Mathematic.* l. 7. § *Of Man*). Berkley, (*Dialog. on Body*). And, still more, DAVID HUME, (*Treatise of Human Nature*, Vol. 1. and *Essay on the Sceptical Philosophy*), have shewed, beyond dispute, that body is never present to the mind : That nothing is ever present to the mind but sensations, as extension, colour, solidity, &c. alledged to be impressions made on our frame by body ; movements of our frame alledged to be caused by body.

The next question is, whether these sensations or perceptions are impressions made on our frame by body, placed without it, or not ?

Sextus

Sextus Empiricus, loc. cit. (and HUME, loc. citat.) have showed, that it is out of our power to form any thing like an argument to prove that they are caused by body. The mind never perceives body; nothing beyond these sensations: There is no possibility of attaining any experience what may be beyond them.

The same reasoning shows that it is equally out of our power to prove that they are not caused by something without us.

Accordingly, I presume it not difficult to discover the fallacy of any reasoning which pretends to establish that point, or the contrary, let us examine the celebrated reasoning of Berkley.

It is proved, and admitted, says he, that the secondary qualities of body, as colour, taste, &c. exist only in the mind, and have no prototype; in the same manner, it may be proved, that the primary qualities, extension

tenſion and ſolidity, exiſt alſo only in the mind, and repreſent no prototype: Now, ſince we know nothing of body but qualities, and that all qualities exiſt only in the mind; it is a contradiction to ſay that body can exiſt, except in the mind.

*‘ Extension and ſolidity, as well as the
‘ other qualities of body, ſuch as colour, &c.
‘ exiſt only in the mind.’*

He has proved, that extension, colour, &c. are movements of our frame, alledged to be cauſed by body. This is clearly aſcertained to be his meaning; the proof is long, perſpicuous, and minute.

*‘ Since all the qualities of body exiſt only
‘ in the mind, it is a contradiction to ſay
‘ that body exiſts but in the mind.’*

This is juſt, if by qualities of body is meant movements, ſuppoſed to be of body,
which

which produce extension, colour, and these other movements of our frame.

His argument therefore is, Extension, colour, &c. are movements of our frame ; since the movements which produce these are not movements of external body, but movements of our frame, supposing body to exist, is supposing body incapable of causing extension, solidity, &c. or, in common language, body, which has no qualities, a flat contradiction. This reasoning requires no long commentary. There is no attempt to show whether the movements of our frame are caused by movements of body or not ; but, relying on an expression of common language, (qualities of body) which was not even invented with any view to this inquiry, he sees no distinction betwixt the movements of our frame, extension, colour, &c. and the movements of body, or of our frame which produce them.

Nor

Nor is there any thing like an argument to support his conclusion, in which ever of the two senses, above mentioned, we take his phrase, ‘ qualities of body.’

He proves that extension, colour, &c. are movements of our frame. The next question is, Whether these are caused by body, placed without it or not? Into this question he never entered.

If these are not caused by movements of body, it is plainly a contradiction, an absurdity to say that body exists beyond our frame. He never attempted to prove that they were not, as I have just remarked, though his treatise is very minute.

It cannot be pretended, that if extension and solidity, &c. are admitted to be only movements of our frame, it follows plainly and palpably, that they are caused by nothing external *. That is not to be admitted

* Citing parallel cases is very bad reasoning; it is, however,

ted without a proof; no proof has hitherto been attempted; and where are the grounds of it to be looked for?

To make a proof, he should have showed that extension, colour, &c. were only movements of our frame, and that these were not caused by body placed without it. His inference would then have been just.

‘ *Exist only in the mind,*’ is a very improper expression; but if, instead of it, *movements of our frame*, or any such expression had been used, the doubt would have more readily have occurred, whether these were the effect of any thing external.

‘ *Qualities*

however, so often used, that one is inclined to suspect it may sometimes have its use: I shall, therefore, venture it for once. A piece of ice becomes fluid on coming near a heated body. The fluidity in the water is a distinct thing from the heat that comes from the body without it. The fluidity exists only in the water, to use Berkley’s language, and has no prototype. Does it, therefore, follow, that it neither is nor can be caused by any thing external?

‘ *Qualities of body*’ is a very convenient expression for the purpose it was invented; but it was not invented with any view to this inquiry. It is here very improper, the subject has been thought by many not the very easiest to comprehend; this expression could not but make it less easy. But if he had spoke clear language, used instead of that phrase, either *movements of our frame, supposed to be caused by movements of body,* or *movements of body, supposed to cause them,* or used these two as synonymous terms, the fallacy of the reasoning had been soon discovered.

‘ We *know* nothing of body but qualities;’ either of the two expressions used by Sextus Empiricus, ‘ *the mind has no intercourse* with external things,’ or ‘ *the sense shows to the mind,* not external things, but its own feeling,’ or any other analogous expression, would also have more readily suggested a doubt than that he uses.

That

That part of his argument where he shows that extension and solidity are mere movements of the frame, as well as colour, &c. is well ; but, I apprehend it is not easy to point out any attempt more defective than the rest.

R

OBSERVATIONS
ON
FORTIFICATIONS
WITH
REVETED DITCHES,
WHERE THE
WORKS ARE RAISED IN AMPHITHEATRE.

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D E D I C A T I O N.

Ob curas hominum ! Ob quantum est in rebus inane !

THE opinions in the following sheets were formed long before they were put into writing. I kept them by me for some time, and I print them now much against my will, merely because of an accident which left me answerable for their errors, and would have transferred any merit they had. The first treatise stood originally in less than a page, and had no figures; but having seen that no reputation or capacity could secure a man from being charged with the most vulgar errors, I found myself forced to spread it: I added, too, some applications of its principles. The second was, from the same reason, made from the first, much longer than I could have wished. In these circumstances, it is surely very unpleasant to me, who have never served, to print on military subjects; but, at least, I am not obliged to inquire whether heaven is defended by infinite artillery, or whether the devil charged in column.

P R E F A C E.

IF in any inquiry of fact and existence we ask whether we have gone all the length possible, we can hitherto satisfy ourselves by no other expedient than an examination of every attempt to add to our knowledge ; nor do we know whether any other ever shall or can be found. But have we any reason to think, that, in the military sciences, we are advanced so far as to have any thing like a ground to put the question ? All appearances say quite the contrary. In the civil sciences, as the mind, chemistry, botany, discoveries are every day made ; and these, instead of narrowing the subjects of inquiry, have hitherto extended them, and that regularly the further as each step is gained ; to such a pitch too. Nor is this opinion of them peculiar to me, but will be assented to by every

one conversant in these subjects, with so little hesitation, that they would not give the opinion, or even the doubt, whether we were near our last stage in them, the name of scepticism. Indeed, if ever we shall attain the utmost our frame permits, in some of these sciences, it is possible, or probable if you will, that we may reach it, in some a good deal sooner than in others: But it is still unknown, whether we shall ever be able to gain that height in any one; it is equally unknown, whether, though it were attained, men could ever prove they had done so. There is no reason for thinking that we have already reached this point in the military sciences, if the others are in the state they seem to be; for we have no reason to think that our progress should be much greater in them than in others. The progress of each of the other sciences is liable to be retarded by several causes: So are the military ones. Forms of government and jurisprudence are those whose history one would expect should approach
the

the nearest to that of the military sciences ; are we to believe that the first is at its utmost height : Whether the last is, is a point fully settled by the writings of Cocceius and Blackstone. The progress of the civil sciences has always been whimsical : That of the military sciences has been at least as whimsical, I think rather more so. The military sciences have been cultivated by men of great abilities. No doubt, there were heroes and inventors, when men fought with stones and clubs, and defended themselves in huts, dens, or trees. But then, from the time of Gustavus Adolphus (and we might go further back), there is a list of soldiers, whose names are not mentioned but with veneration : In the others, there is a very long list of names which are mentioned with equal regard : Within that period, Rapin has been held a great historian, and Petty a great financier, and, on this so called science, no discovery has ever been made by a great general, nor by one who showed genius on any other subject.

OF THE HISTORY OF THE ARTS AND MANUFACTURES OF GREAT BRITAIN. O F

O F

REGULAR FORTIFICATIONS.

Of Dry Ditches.

IT is agreed, that such plans as Belidor's second method, or Biffer's fifth, ought not to be used, except where the town is the whole state, as Hamburg; or its last resource, as Magdeburg happened to be in the seven years war*. I shall examine here
such

*. The reason given for this is, that troops and stores cannot be afforded to garrison them according to their extent, and that, if they are provided only as the simpler methods,

such methods as are used where the stake is less, in cases supposed, a century ago, to happen every day †.

I.

Fig. 1. is Biffet's eighth method ; Fig. 2. is Biffet's first method. These, it is allowed, admit a very good defence.

Fig.

methods, the defence they make will be little or nothing better. This reasoning is good, and fully enough to decide the case in hand. It may be applied to works still simpler than those now preferred, at least, in some measure. I flatter myself I have introduced a principle which goes further.

† It is now thought not proper to fortify all the places that would have been fortified then. I presume this change of opinion has come, from considering the uncertainty whether the places would be besieged, the manoeuvres of armies being performed with much more dispatch and safety than in these days, and that it was observed it cost more to fortify and defend a place than to take it.

Fig. 3. is done from Fig. 1. Fig. 4. from Fig. 2.

Would it not be better to fortify in such methods as the latter ?

First is to be considered the uncertainty whether the place may be besieged, and when.

Suppose the difference of expence in the construction bestowed in additional troops and stores for the smaller works, the others being provided in the usual manner ; from which is the best defence to be expected ?

The covered way, glacis, and field of Nos 3. and 4. may be as well mined as those of the other. I just mention counter approaches, to shew I have not forgot them.

It will not be disputed, that the smaller works are still enough to oblige the besieger

to go on by regular approaches, and to batter in breach for more or less time.

The aim of the garrison is to put the besieger to as great expence of men and stores and to make him employ as much time as they can. The secret of the defence is to husband the strength of the place, so as to attain these ends in the greatest degree.

While both parties are provided, as they have been in the last wars, after the besieger is master of the glacis of such plans as Fig. 1. and 2. if he has conducted himself with proper caution, whatever men the garrison can kill him, they cannot hinder him long from entering the body of the place, though they should not have fired a shot, nor made a sally till then. They always use a great proportion of their stores before he can get there, and lose many men.

Mining

Mining retards the besieger's progress to the crest of the glacis, more than the fire and sallies of such places; it kills few men.

The additional charge in the more expensive plan is laid out over the whole enceinte. The besieger has to repair only the demolition he did.

State two places precisely the same, but the garrison, artillery, &c. of the one to those of the other, as 15 to 10. The additional charge is employed entirely against the enemy. This is the chief reason why large places have made so much better defences than small ones: A decagon, *e. g.* Vid. Le Febvre's and Mont. Rozard's translation of Antoni's Treatise of Artillery, dated 1780, (I have not seen the original) is garrisoned and provided according to its number of bastions, the hexagon is attacked, perhaps, by the same force, or at least by a force greater in proportion to that it has for its defence.

On

On the whole, I think we may expect the smaller works will make the better defence.

II.

Let us now consider the works left at their full height in Fig. 3. and 4.

Many have contended that the body of the place ought to be as low as the out-works which cover it.

One reason much insisted on was, that, when the out-work was ruined, the cannon might be retired into the inner work.

The covered way, ravelin, bastion, glacis of Vouban's first method, has never yet been so fully employed as they might advantageously be.

T

Another

Another was, that the besieger could ruin the body of the place at the same time that he ruined the out-works, and while he was yet at a distance *. In answer to this, it has been observed, that the demolition is not so great as is represented, the mark is so small, and the repair not difficult; that Vouban had not seen a parapet so ruined that it could not be used; and before the besieger begins to batter in breach, the parapet may be put in almost as good condition as it was the first day of the siege: That the command given by the height was of great consequence, particularly when the enemy came near.

What respects the demolition in this answer has the less weight, according as the besieger brings on his batteries, (compare Biffet and Le Febvre); on the whole, it appears clearly, that the high line is the best; but

* One reason for the numerous batteries we see in some methods has sometimes been probably the ease of the repair.

but the expence of carrying this height round the whole enceinte, would furnish a great quantity of stores, if the works are completely reveted; if they are demi-reveted, the expence ought not to be saved.

As to the curtain, I need only say, that, in each point, I would wish to have some little thing to answer the use of a cavalier, and that distance increases the uncertainty of the aim of mortars, and hobitz still more than that of cannon: It seems admitted, that the besieger ought not to take the ravelin; nor would lowering the curtain to its level make it his interest to do so.

III.

Many methods of fortification are so admirably contrived, that it seems barbarous to attempt to bring them into disuse; if, however, in the course of such attempts, a waste of public money is prevented, the
man

man who does it will not be entirely a vegetable in his country, and he cannot be entirely dissatisfied with the time he has bestowed on it. I think I should have little pleasure in constructing a fine plan that I supposed would never have justice done to it.

Fig. 5. is done from Pagan's first method; it is allowed to admit a very good defence.

It is easily seen that I do not suppose the advantage of employing stores on the counter-guard, rather than on the bastion, and any other use there is hitherto found in that work, a compensation for its expence.

Fig. 6. is done from Fig. 5. Fig. 7. from Fig. 3. and Fig. 8. from Fig. 4.

These are still enough to oblige the besieger to go through a regular siege; they admit mining equally as the others.

Against

Against the general assault, early in the siege, the flanks of the bastions, in Fig. 3. and 4. are an excellent defence, which these last have not. Vaulted batteries, for two or three pieces of cannon, could be made in them at little expence; which, against such an assault, would be of great use. But it would be necessary, a little before he began to batter in breach, to take away the guns and ram them as the gallery of a mine.

IV.

Where a fortress is done where there were no houses, there is a vast quantity of earth which must be carried away; where a place already built is to be fortified, the interval between the buildings and the works affords, almost every where, a great deal. Without the works earth is always to be had in the fields, and little heights are often met with that would be of use to the besieger.

V.

V.

On what diminution of the ditch, a material addition must be made to the numbers of the garrison, and what addition on account of different degrees of diminution, is what will not be agreed on till many trials are made. I dare only remark, that, in a matter so uncertain, and so important, nicety is not at present to be aimed at, probably never.

VI.

If a gallery in the counter-scarp were to be carried round the whole place, on account of the resistance made from its loop-holes to the passage of the ditch, the money must be held ill laid out. If there is one, why make it large?

VII.

VII.

Le Febvre, in his example of a siege, supposes the retrenchment in the bastion made after the siege is begun; in stating the question how much mining ought to be done beforehand, he gives the mining at Fort Jauernik of Schweidnitz, which he calls Travaux immenses, (Note, p. 8. *Essai sur les mines*), as works which were not *faites de longue main*. If the excavations made by the globes of compression (Plate 3. siege of Schweidnitz) are admitted as a scale, (there is no other) the galleries beyond the counter-scarp were five hundred fathom. I need enter into this question no further than to observe, that though something ought always to be done beforehand; the expence of such works as are not done till the besieged has fixed where he attacks, is not laid out till wanted, and only where wanted.

MISCELLANEOUS REMARKS.

I.

Ought the flank of the bastion to be placed as in Fig. 1. (for instance), or retired, as in Fig. 9. or 10.?

Bisset, (Sect. 2. chap. 3. § 56.) says,
 ‘ Bombs are of so much importance in the
 ‘ attack, and answer so effectually all the
 ‘ ends which are obtained by counter batteries of cannon, that there seems to be
 ‘ a possibility of taking fortified towns with
 ‘ bombs only*; and, it is certain, that
 ‘ there are always more of the cannon of
 ‘ the besieged ruined and dismounted by the
 ‘ bombs than by the cannon of the enemy,
 ‘ when

* There can be no doubt, that a place may be taken without either cannon or bombs.

‘ when the former are properly used, and
 ‘ in abundance.’ If retiring the flank of
 the bastion made it the besieger’s interest to
 lay out shells against it, instead of cannon-
 shot, this is to him such a loss, that the
 flank ought to be retired: But merely re-
 tiring it does not make that his interest;
 it is, therefore, a matter of indifference.

II.

Though the size of ditches I propose
 were as proper, as I believe it to be, yet the
 imaginations of many will be so shocked
 by the look of it, that they will not give
 the proposal an examination.

Fig. 11. is a ditch twenty fathom wide,
 and twelve feet deep. Fig. 12. is twelve
 fathoms wide, and eighteen feet deep.

Considering the great difference of ex-
 pence, would it not be proper to make

U

them

them as in Fig. 13. and 14. or to slope the scarp too, or to slope only the scarp. Fig. 15. is the body of Fort Jauernick of Schweidnitz from Le Febvre *. In places which, by chance, have many troops, such a ditch would be better than those in Fig. 11. and 12. A stair of brick would be better than reveting the ditch to the top with brick; but a stair of brick or stone would be shattered by shells, and do hurt and confusion by the splinters. Such a composition as we see in buildings of the Romans, if deep enough, would resist shells well, and it would not splinter; but it would be expensive †. If there is a gallery in the counter-scarp, there is less benefit in this alteration.

III.

* He makes no remark on it.

† Instead of reveting with stone, might it not, in some situations, be proper to use these compositions.

III.

If the great ditch were continued along the lines of defence, there would be a considerable portion of it that would not be seen into ; this might in a great measure be remedied by sloping the scarp towards the flanks and curtain. In the ravelind method, Fig. 16. from the line in which the face of the ravelin produced cuts the ditch, &c. the ground is sloped away, so that the whole ditch is seen into from the flanks and curtain * ; along the foot of these there is no excavation. The great saving

* I think it needless to draw any slopes or communications with the ravelin. I take it to be granted there must be some cheap contrivance along the flanks and curtains, for the sake of sallies against the enemy's lodgements in the ravelin. Other works may also be made in the space between the lines, &c. at an inconsiderable expence, by sinking them some feet in the ground, as, for instance, a kind of caponiere, and something in the shape of a redoubt to the ravelin. I enter not here into this matter.

saving that may be made by this I think a very proper one. It may be objected, that the besieger will carry on his attack by taking the ravelin, and thence go to the curtain or shoulder, and so find his account more in the attack of this than of Fig. 3. First, this place can, on the same total, be better provided than Fig. 3. by much. In the next place, in attacking Fig. 3. it is not his interest to take the ravelin; here taking the ravelin costs him more than in Fig. 3. Suppose him now to have made an entry into it, there is next in Fig. 3. the passage of the great ditch; here he is more exposed to suffer by sallies, and the besieged have more opportunity of mining. On the whole, then, it seems the interest of the besieger to carry on his attack against the face of the bastion. Even if the two places were equally provided, each in the manner suitable to its construction, but both decently well, this place does not appear much inferior to Fig. 3. The chief difference is, that a practicable breach is easier

fier made here in the flanks or curtain than in the faces of the other ; that difference is in that article very considerable, but will not, I presume, be held to make much difference betwixt the defences, if both are are equally well conducted*.

IV.

Suppose the body of the place fortified by Bisset's eighth method, whether are ravelins to be added, or only common places of arms in the re-entering angles where the ravelins stand †. I think the ravelins well worth

* Long after this was written I was informed by a very good authority at Copenhagen, that something like this has been done in the Belle Croix at Metz (the engineer's name I have forgot) but though the inventor, whether my informer or the engineer, had printed the plan, I could not avoid citing his reasoning, if it appeared any way tolerable.

† I stated the case in this manner to avoid entering at present

worth the additional expence. Not because they oblige the besieger to break ground

present into a discussion, whether, instead of the ravelin, it might not be proper to make only a place of arms of its size, (as in Fig. 17.) or instead of the lunettes in Fig. 2. to make places of arms of their size, (as in Fig. 18.) or to zig-zag the covered way otherwise, leaving the great ditch as usual. The redoubts have a stair-case like those of the drums of lunettes. The use of these last kind of works is more or less as the strength of the place is in its small arms or great. Le Febvre informs us, (Siege of Rivil, chap. 17. last note) that the drums of the lunettes at Bergen-op-zoom cost the French dear. Bergen-op-zoom had an army in it; and there is no one spot near at hand but may be made to cost the enemy dear. He has not said but it was by the irregular strokes, of which there were many at that siege, that they came to cost so much. Besides, the attacks of Turin in 1706, and Lisle in 1708, were very ill conducted, and for these there is no excuse.

I shall just observe, that, if it is objected that so large a place of arms as in Fig. 17. is liable to be carried by general assault much earlier in the siege than the ravelin, if a great addition is not made to the garrison, and which I do not believe; yet that a great saving may be made by sloping the bottom of the ditch from the salient angle towards the face of a bastion, in such a manner that it
may

ground further off; for if there were no variation in the troops or stores, that in itself would only oblige him to go through more fathoms meeting less resistance in each fathom; nor because of the time and expence he must bestow on making a practicable breach in the ravelin; but because of its use when the enemy comes near, and the use of the collateral ravelins.

V.

In some places we find simple fronts, as in Fig. 19. For the flanks and curtain I propose a redan, as in Fig. 20. The developement of the two figures is the same. To the ravelind method, Fig. 21. I prefer
Fig.

may be well seen into, and that to such a ditch the objection will not be made.

As to the flanks of the redoubts, there is little use in those of the front attacked; the use is in those of the collateral fronts; at building the place, therefore, they ought not to be raised so high as the crest of the glacis.

Fig. 22. Fig. 23. is given as a similar improvement on Fig. 5.

VI.

If there was drawn within Fig. 6. (for instance) parallel to it and at the proper distance, and so high as to fire over it, a line of works without a ditch, such a place, on the same total of expence, would make a better defence than Fig. 5.

On this ground I propose, Fig. 24. 25. to be compared with Fig. 5. Though these plans were held good, it is not to be expected that engineers would agree soon on the height the inner line should be raised to. On the one hand is to be alledged the greater quantity of fire which may be employed, at a greater height too, the line which holds it almost entirely covered from the enemy, and in a direction different from any other, with the equal ease of sal-
lying

lying for a trifle more expence in the issues. On the other, besides considerations already often employed, there may be much stress laid on the effect of sallies, particularly when joined to vigorous mining, on which subject the authority of Saxe, given in a very instructive project of fortification, may be added, and the advantages of blowing judiciously pieces of the outer wall may be mentioned.

VII.

In chap. 5. Siege of Rivol, Le Febvre directs that the besieged should begin to fire as soon as they know where the enemy is, ‘ *Le feu (says he) d’une place assiégué n’est jamais si fort qu’au commencement du siege ; et cela doit etre ainsi ; pour eloigner l’assiegeant le plus qu’il est possible, et lui disputer le terrain pied à pied **.’ In that siege

X

I

* He goes on here, *Lorsque l’artillerie du dehors a*

I cannot help thinking, that the garrison ought not to fire a shot till the besieger sets about his third parallel at soonest, that is, in the attack of the left, for instance. Le Febvre informs us in the same chapter, that in all the sieges of the last war, (the war 1741, in the Low Countries,) the besieged, the night of opening the trenches, either did not fire at all, or not till after midnight, and says I am *tres persuadé* that the governors had all flattered themselves that they would not be surpris'd. In chap. 4. § 1. he tells us, that, in the last sieges of the French in Flanders, they lost fewer men the night of opening the first parallel than

gagné la supériorité sur celle du dedans, il n'est guere possible que celle-ci lui résiste, et si l'assiégé ne profite pas du tems et de ses avantages dès le commencement, en voulant peut être trop économiser à quoi lui suivront ensuite ses poudres, et toutes ses autres munitions, lorsque ses batteries seront démontrées, et qu'il ne lui restera plus que quelques pièces ambulantes. I do not see what he meant here; for I cannot suppose him to have run into an error which Vau-
ban and Bissot avoided.

than in most of the other nights. In this very siege our author take it for granted, that the besieged do not fire till after the enemy has been some hours at work, and he supposes the soil neither favourable nor otherwise. The advantage is that of employing the shot when he is a better mark, and when his shot is more to be feared. It may be objected, that, if he does not fire his ammunition from the beginning, it will be taken ; but that can happen only from misproportioning the stores to one another, or to the troops, or from misconduct. It may be said, that this makes it his interest, or at least engages him to perform the first parallel ; though it should, he can better afford it ; in sieges we must suppose that he can get what he wants, and the place only what it set out with *.

VIII.

* I found, in the King's library at Berlin, a book I had long searched for to no purpose, *Analisi ed esame ragionato dell' arte della fortificazione e difesa delle piazze dell' Abbate Carlo Borge, Venezia 1777*, in which the author proposes to
save

VIII.

In the same attack of the left, Fig. 11. there are no batteries of cannon raised between the breaching batteries on the crest of the glacis and the third parallel; and these last are covered by the crowning of the glacis. Now, I think it were much more frugal to raise between these. I would raise them for two ends.

First, To have my cannon where I had a better mark.

Secondly, To avoid covering them by my works on the glacis.

Le

save the fire also, and defends such conduct at great length. I, however, left my section as it stood, because I got thereby an opportunity of defending further the changes I propose in the construction of places.

Le Febvre says, chap. 16. that whatever is done by the ricochet batteries on the flanks of the attack, (they are in the first parallel) by a constant fire of the mortars of the trenches, and the musquetry without ball from the nearest parts of the approaches, cannot hinder, but the interval from covering the batteries of the third parallel to opening the breaching ones, is the time of the siege in which they must lose the most men *; and in chap. 17. that the situation of the besieger is then the most critical in the whole siege. The besieger covering his cannon, if he means to hinder the garrison from having their works before he can begin to batter in breach, in almost as good condition as they were in the first day of the siege, must do it by mortars: For the batteries in ricochet can do little. Biffet says they did little at Bergen-op-zoom. It does not appear that they did much at Schweidnitz; and Le Febvre,

* This *expression* is ambiguous.

Febvre, in chap. 17. says that, in these circumstances, the besieger is not always sure of being able to make use of them as he would wish.

Suppose now the ammunition of Rivel husbanded so as that there remains two thirds of it (for instance) when the enemy has covered his batteries on the third parallel. In this case there is still more reason for making such batteries as I propose.

IX.

If against a pentagon five attacks (*e. g.*) are made instead of one, it has but the fifth part of the troops and stores to oppose each attack.

* * * * *

The progress of all sciences has been much retarded by routine. Fortification
has

has also felt its effects. There is perhaps less reason to expect that it should, in a little time, get out of its shackles than any science of fact and existence.

In this science the opportunity of experiments has always been small ; the number of places fortified is small ; few have access to see them ; sieges rarely occur ; the experiments coming under the eyes of few were communicated with the more reserve ; a failure would draw bad consequences where the stake played for was so deep. This has been the chief subject of attention to very few. The nomination of an engineer to build a place is a subject of intrigue in the Sovereign's court, and perhaps in half a dozen courts below his. There is a bustle to name the director of an attack or defence, and who is to attend him.

Tactics

Tactics are also a subject of intrigue ; but in them the opportunity of experiment is endless. Improvement in them was supposed to be of more consequence, than any improvement in the other ; procured much higher rewards from the Sovereign, and could place a man a great deal higher in the eyes of the world too ; they have not only been the chief subject of attention to an infinitely greater number of people in each country ; but if we compare the nations to whom they have been the principal subject of attention, we shall find engineering has had by much the least. They have been cultivated by numbers whose genius is placed in the first rank, and that for ages past. Yet, in the history of modern tactics, we see not only all Europe, but these great names, persist, till very lately, through ages, in errors which would seem to require no great effort of acuteness to detect. It may occur that this subject must be confessed simple, that no other account can be given of the moderate degree of respect paid to
any

any success in it, respect in itself moderate, paid but to a very small number, while all the others who follow it, or have followed it, are neglected or forgot. That it has not, however, been left entirely to those whose profession particularly it is; that the greatest generals have had more or less at stake in sieges; have interested themselves, and been interested, whether they would or not, in their event.

In the *first* place, in the history of other sciences, we do not find that the simplest discoveries were the first made. In the *next* place, these great men left, in the sciences they chiefly attended to, errors, which we would think easily amended. In the *last* place, it is certain, that none of them made any improvement in either the attack, the defence, or the construction of towns: Though they were often engaged by every tie to study them; as if the simplicity of the subject had deprived them of their usual reach.

It is not denied, that till Vauban got into employment, there was much routine in engineering; the many errors made, *en passant*, in the most estimable books, and in those of an inferior order, on the chief subject in view, not only show that the subject is far less familiar than is alledged; but excite a suspicion that many opinions on the most important questions are chiefly the result of routine. I shall not enter into these; but I shall give some deliberate opinions of men of the first distinction, on important points, which appear still more to confirm the suspicion.

FOLARD,

In his Commentary on Polybius, Book I. Chap. 1. pag. 47. he says, ‘ *Après la prise du Quesnoy ils,*’ (the Allies in the war of the Spanish succession), ‘ *investissent Landucy, (ils n’avoient que a pas a faire pour penetrer la France), qui etoit une affaire*’
‘ *de*

‘ *de peu de jours, avec des forces si formi-*
 ‘ *dables. Les gens eclairez croioient me-*
 ‘ *me cette bicoque plus bicoque qu’elle n’etoit*
 ‘ *en effet, en faisant abstraction de ses rem-*
 ‘ *parts, et de ses ouvrages.*’ The *gens e-*
clairez must have had an accurate plan of
 the place, for it had been long in the hands
 of the French, and the situation of their
 affairs, for some time before the siege, for-
 ced them to attend to it. The *gens eclairez*,
 therefore, estimated the strength of the
 place by its works, without observing what
 difference providing it better than usual
 would make, or, at least, believing it would
 make no difference worth regarding. The
 author no where insinuates that he did not
 himself fall into the mistake with the *gens*
eclairez ; his expression rather insinuates the
 contrary.

LAN-

LANDEBERG, Pag. 9. Edit. 1731.

‘ *Après avoir attentivement medité sur*
 ‘ *le plan de la citadelle de Lille, dans le tems*
 ‘ *que les allies s’en étoient rendus maitres*
 ‘ *de meme que de la ville, il me sembla qu’en*
 ‘ *moins de deux mois de tems, et pour la*
 ‘ *somme de douze ou quinze mille ecus, on*
 ‘ *pourroit mettre cette citadelle en tel etat,*
 ‘ *qu’il ne seroit pas possible aux assiegeans de*
 ‘ *la reprendre par la force de l’artillerie.*
 ‘ *Je me persuadai qu’on pouvoit faire la*
 ‘ *meme chose a l’égard de Bethune et de*
 ‘ *Aix. 125,000 florins de la Hollande suf-*
 ‘ *fisoient pour ces trois places;’ . . . goes on*
 to prove this, and explain his plan. ‘ *Je ne*
 ‘ *doute point qu’un bon commandant, a qui la*
 ‘ *defence d’une place construite suivant les*
 ‘ *regles que j’ai pris la liberté de proposer,*
 ‘ *seroit confié, ne fut en etat d’empêcher*
 ‘ *l’ennemi d’entrer dans le chemin couvert,*
 ‘ *et qu’il en rendroit bon compte, s’il avoit*
 ‘ *seul-*

*‘ seulement cinq ou six bataillons dans la
 ‘ place, et cinquante ou soixante pieces de
 ‘ canon de huit ou douze livres de balle.’*

To such a degree has the proportion of the total troops and stores of the garrison to those of the besieger been neglected.

FEUQUIERES.

Vid. his Remarks on the defence of Tournay.

SAXE, Reveries, Book II. Chap. 1.

*‘ It is towards the end of a siege, when
 ‘ every thing comes to be disputed by inches,
 ‘ that vigor and resolution are most wanted:
 ‘ At which time, the greater proofs you
 ‘ give of these, the more the enemy will be
 ‘ discouraged; for discords will then begin
 ‘ to spread among them; forage and provi-
 ‘ sions*

‘ sions will grow scarce, and all things
 ‘ seem to concur to their destruction. If,
 ‘ moreover, they perceive that your resist-
 ‘ ance is still stronger, and that it increases
 ‘ when they expected it to diminish, they
 ‘ will be at a loss how to act, and give
 ‘ themselves totally up to despair.’

They surely need not despair of exhaust-
 ing his ammunition and stores; and what
 are works without arms?

VAUBAN’S First Method.

This is completely reveted, ditch twenty
 toises broad, twelve feet deep; suppose the
 fire of the rampart to graze the glacis
 completely.

State now another plan also completely
 reveted, ditch same depth, twelve toises
 broad, same glacis, and the fire of the ram-
 part to graze it, in all its breadth, as it
 does

does the other. Suppose now batteries of the same height above the field, and at the same distance, planted against both.

Since the heights of the ramparts are as their distance from the foot of the glacis, the portion of Vauban's rampart seen over the glacis, subtends at the battery a greater angle than the portion of the lower one; the besieger can also batter in breach Vauban's rampart at a greater distance: On the other hand, Vauban's rampart sees more into the besieger's works. Let us leave these to balance one another; engineers will, perhaps, never agree on them. Suppose Vauban's place provided according to Le Febvre's rule, his own, or any other, so it be decently furnished, and the other place the very same. Any one who would give a general assault to the second, while the works are yet entire, ought also to do the same to Vauban's, for the narrow ditch is still so broad as to hinder him the same. The only advantage Vauban's has, is a mere trifle,

trifle, (it will be allowed so) more difficulty in the ascent: And, in the other, the works are closer, as well as less exposed. If, at any time, earlier than usual, he means to give the general assault, supposing the strength in both husbanded the same, as also the same attack, it is easier for him to give it to the higher work, as he must be supposed to have made more demolition in it than in the other, and the greater loss of men he may sustain from the higher work, we must suppose him able to repair. With regard to regular siege, it is sufficient to observe, that, on the one hand, Vauban's plan has a broader ditch for the enemy to pass, where it is said he may be opposed; and, no doubt, he may; but the advantage is only that of opposing him there, rather than elsewhere, which is just nothing; on the other hand, the narrow ditch brings the works closer, undoubtedly an advantage. Though the difference of the height of the ramparts be but a trifle in the length of the scaling ladders, yet the expence of
that

that difference, carried round a revêted place, is very considerable. The glacis and parapet of both require the same quantity of earth; the evacuation of the greater ditch is to that of the smaller, in a greater proportion than its rampart is to the lower. But, when a fortress is done where there were no houses, there is a vast quantity of earth which must be carried away; when a place already built is to be fortified, the interval between the works and it, almost every where, affords a great deal: It is, in towns, thought a saving to sink private buildings a few feet. Without the works, earth is every where to be had, and little heights are sometimes met with that would be of use to the besieger.

The question is, between earth got out of the middle of the wide ditch, and earth got elsewhere.

It is, on the whole, almost every where much more to the engineer's purpose, to
 Z make,

make, in this method, the ditch only twelve toises.

Now, to the first who fortified by both a ditch and bank, it appeared excellent contrivance to do two things at once.

COCHORN'S *Ditch*.

Say twelve fathom broad, and eighteen feet deep; compare this with a ditch of the same breadth, only twelve feet deep.

Any advantages the latter has over Vauban's first method, the former has also, besides the additional strength by the depth of the ditch. Suppose the besieger meant to give the general assault while the ditches were entire, and the ramparts entire, or nearly so, or the works in both equally hurt; the descent and ascent are not only more difficult in reality, but the very appearance

pearance of the deeper ditch is much more suited to awe the imagination; so that if the latter is decently provided, the former may be held equally defensible, with a less force. But the method universally approved, when a place is properly provided, is, to weaken the garrison, and make a large breach, before giving the assault, if it is to be given at all. All engineers will confess, that, in the regular method of approach, the difference between passing the deep ditch and the other, when opposed by equal strength of garrison, is a mere trifle. Now, though Cohorn could revet his ditch, at the same, or perhaps less expence than Vauban could his; yet a ditch of only the depth of Vauban's may be reveted in Cohorn's method. As to the earth, the question is about only hoisting it from a greater depth, and getting it from elsewhere.

The difference of expence between the two constructions is great; by using the one, this difference is almost entirely saved,
till

till wanted, and then is only used (except a trifle, if people aim at nicety) in the fronts attacked : A great superiority.

But Cochorn's ditch affords earth enough for the works.

LE FEBVRE.

Siege of Rivol, chap. 7. § 6. ‘ *On fait deux ou trois attaques devant une même place, pour en imposer a l’assiégé et diviser ses forces ; quoique d’ordinaire il n’y en ait qu’une vraie, on doit cependant les traiter toutes aussi sérieusement l’une que l’autre, ou du moins le paroître, autrement l’ennemi qui s’appercevrait bientôt de la feinte, laisseroit l’une pour donner sa principale attention a l’autre.*’ The false attacks are to be carried on by this direction so briskly, that the besieged shall have a difficulty in distinguishing

distinguishing which is the true*; they must, therefore, have, during the former part of the siege, a good number of labourers, with their tools, for the false attacks; they must also be pretty well guarded, at least, in proportion to the other. Why not then make them real? The thing seems perfectly clear. There is not here the least insinuation of exhausting the garrison the sooner (nor any where else), but expressions so very general, as show that the author had no intention of communicating any thing out of the beaten path †. It is true,

* The author gives instances of places taken on the attacks meant at first to be false, so that, in some of these, the deception may have been well kept up; I say only may, because there are bad reports of the Orange party; and our author informs us, that the French were sometimes careless in reconnoitring .

† I conclude, that one part of the meaning of the expression *en imposer a l' assiege*, was to mislead him that he may make (for the time) less resistance to the true, and neglect some one of the false, so far as to give the besieger an advantage in making the true. From the facts alluded

that there must be some quantity, beyond which all the strength thrown into a place would be of no use, and if a place were so provided, making more real attacks than one (or, indeed, false either) would be only more loss, if not delay : But, on the slightest examination, it will be confessed, that no place has ever yet had that quantity, or any thing near it. As a place may also be so very weakly provided that there is little use in a false attack, or in more than one true one.

This last is not the question here.

LE FEBVRE,

Siege of Rivol, chap. 5. § 2. says, ‘ *Le
feu d’une place assiégué n’est jamais si fort
qu’au*

alluded to in the preceding note, he never insinuates any thing of the treachery of the governours ; even a treacherous governour might give an advantage when he did not mean it.

‘ *qu’au commencement du siege ; et cela doit
 ‘ etre ainsi, pour eloigner l’assiegeant le plus
 ‘ qu’il est possible, et lui disputer le terrein pied
 ‘ a pied.*’ As if the troops and stores in
 the place were unlimited. In this very
 siege, on the attack of the left it is certain-
 ly soon enough to begin firing when the
 besieger sets about his third parallel, which
 is on the fourth night of the siege.

He informs us himself, in the same chap-
 ter, that, in all the sieges of the last war,
 (the war 1741 in the Low Countries), the
 besieged, the night of opening the trenches,
 either did not fire at all, or not till after
 midnight, adding, I am *tres persuadé* that
 the governours had all flattered themselves
 that they would not be surprisèd: Also, in
 chap. 4. § 1. That in the last sieges of the
 French in Flanders, they lost fewer men
 the night they opened the first parallel than
 in the run of the other nights. In this
 very siege, he takes it for granted, that the
 besieged do not fire till after the enemy has
 been

been some hours at work, and he supposes the soil neither favourable, nor otherwise.

The question is, therefore, merely the use of so many shot when the enemy is at a greater or less distance.

The expression he uses is that of a general rule, which includes sieges where mining is employed: Yet, if the place is ill provided, the conduct I propose is still less to be disputed. If a place, indeed, were provided, as no place ever was, nor Rivol in particular, such conduct (Vid. preceding instance) would be pure loss.

The question is only the shot fired in three days; it cannot, surely be pretended, in the case of Rivol, that this quantity must, if not fired then, be found in the magazine.

His reason is, not that the variation this would cause in the repair would be as hurtful

ful as the waste objected to ; for, besides, that such variation, though, on the whole, more material, could be guarded against in providing the place, he takes no notice of the circumstance, but gives other reasons. It is true, that, in his method, the besieger passes through more fathoms under the fire of the place ; but, in mine, after passing some unresisted, he meets more resistance in each fathom of the remainder ; the facts he has given shew, that, in his method, the additional quantity wherein I would not bestow opposition, is passed through with little loss, and that surely might be believed on much less authority.

He goes on ‘ *Lorsque l’artillerie du de-*
 ‘ *hors a gagné la superiorité sur celle du*
 ‘ *dedans, il n’est quere possible que celle ci*
 ‘ *lui resiste, et si l’assiege ne profite pas du*
 ‘ *tems, et de ses avantages des le com-*
 ‘ *mencement, a quoi lui serviroient ses poudres*
 ‘ *et toutes des autres munitions, lorsque ses*
 ‘ *batteries seront demontées, et qu’il ne lui*
 A a ‘ *restera*

‘ *restera plus que quelques pieces ambulantes.*

Of the Bastion and Curtain. The Routine Line.

Where no account is kept of the improvements made, where any account taken has been kept private, or even has not got into the public, it is difficult, if not impossible, for most to see how they were affected by routine. Even with a tolerable history of the practice of ages, we might be misled from omissions in our monuments, and suspect routine where there was none, as well as novelty. Even with histories a degree more complete, there is still room for hesitation.

The history of the invention of the bastion given by Deidier in his *Parfait Ingenieur*

nieur François, is so natural, that, allowing for some deviations, which neither could nor ought be noticed in so general a view, we cannot believe it very different from what really happened. After the middle of the fifteenth century, we find such works on foot, that the trains of artillery then brought to sieges, were able (for aught we know, in spite of all attempts to repair) to make a practicable breach in a day or two, and that from the first ground the batteries were made on. While building and repairing were so ill understood making the flank of the bastion *sichant*, might justly be esteemed a very good contrivance. This position, however continued it is well known to be directed by a long list of authors, long after the necessity was removed. Errard of Bar, engineer to Henry the Great of France, made his flank perpendicular to the face, keeping it safe; after him we find a long list who, for the same reason, made the flank perpendicular to the curtain. At length, however,

ever, a better position has been of late agreed on. But the flank s'chant continued not only long after the first necessity, but after the escalade itself was scarce ever seen; because it was not thought of till the breach was good, the garrison of a vigorous governor was by this time exhausted, or before, and no other would dream of risking it. The long flank, however, continued still in favour, though no one could show that the half of it, or little more, was not enough. Bisset proposed to shorten the perpendicular so as to make the flank of sixteen fathoms, besides the flanks of the gorges. This change had many advantages; in particular, when joined to the flank of the face given in his second method, one should have supposed no opposition would have been made to it. Yet, from what we find in the books printed since these improvements were suggested, and from the work of that excellent engineer never having got to a second edition, we see that they are neglected. The
 bastion,

bastion, though originally contrived against the escalade and the passage of the ditch, continues still the element of regular fortification, though the escalade has been out of the question for a century past, although, for so long a time, not only the passage of the ditch, but every part of a siege, has changed its face ; and though a bare inspection shows, that a redan, in all common cases, might be substituted to its flanks and curtain to great advantage.

OF WET DITCHES.

The consideration of these gives, perhaps, the chief objection against the reasonings laid down above. It may be said, that the dimensions of these are less than those of dry ditches ; that these guard better against the general assault than dry ditches ; that engineers, therefore, were in the construction of ditches plainly guided by the facility of the general assault, and
thought

thought such dimensions as Fig. 3. too small.

In the first place, I am yet to learn that the dimensions of ditches have been much or often altered on account of the water in them, except in preferring a broad shallow ditch to a narrow deep one, or that the general opinion of engineers is, that that there ought to be much other alteration on that account. In Le Febvre's Rivoi, the great ditch is twelve feet deep, and twenty toises broad, the size attributed to Vauban's dry ditches, and admitted to be sufficient without the six feet of water; the ditch of the ravelin the same depth, and fourteen toises broad, agreed to be enough, though dry.

It is obvious, that the water renders the passage of the ditch more difficult, either in assault or in regular siege; and, therefore, it is no wonder if an engineer, freeing himself a little from routine, should
content

content himself with dimensions somewhat less. But even this may have cost time, may have begun, or been sometimes used from being confined in the sum allotted for building the places, or even from fraud or disputes about ground. And I think it may be plainly shown, that the opinions stated in the objection were not those of the engineers who did make the deviation. Compare the plan of Rivol (*e. g.*) with another whose ditches are of the same depth, the great ditch only fourteen toises broad, and that of the ravelin ten. The garrison that provides Rivol tolerably well, will not be pretended a bad provision for the other. Narrowing the ditch gives many advantages ; the works are lower, therefore less expensive, and seen at a less angle from the field ; they are closer, and the besieger, it is agreed, has much less ground to erect batteries against the flanks. This last advantage is much insisted on by all engineers in treating of the salient angle of the
bastion

bastion and Cochorn's ditch *. All these, it will be allowed, overbalance the advantage of the height of Rivol. Where much of the water of the ditch is gained from within itself, there cannot be a worse place to get earth from than the ditch. Nothing, therefore, but routine could have hindered the ditch from being narrowed.

Where the ground easily permits mining, and the ditch is wet, there is less reason against the alterations I propose.

Of Irregular Fortification.

Though I thought that the methods I oppose could be defended against all I have
said

* It is sufficient for my argument that this is supposed no inconsiderable advantage. In reality it is a trifle. If he extends his battery on the glacis it costs him somewhat more labour. As far as he extends them on the counterscarp he constructs them at more labour ; but his merlons are stronger.

said, I should think that the great variety of plans that has been proposed, is not more useful by giving different scales of expence, than by giving different positions of works.

On considering the different expedients by which the disadvantages of situation are corrected or eluded, it will be allowed, that, if I have succeeded in showing that a single line is sufficient in even ground, it may often be found the properest in uneven ground. Where its faces were so short as not to contain fire enough, I would, in general, prefer cavaliers * to outworks, as also where, on other accounts, I built two lines. If my opinions on husbanding the ammunition and troops of the place are

B b juſt,

* I do not mean to limit the use of cavaliers to uneven ground ; I think that, in my own plans of regular fortification, some little things of the kind would here and there be worth the expence. To them they are of more value than to the usual methods.

just, the engineer is more at liberty in choosing his plan. I need not enter into cases extremely bad.

* * * * *

If cremailleres (invented by Fallois) are used instead of the glaciis and covered way, (I think them preferable) there will be the less to object to the alterations I propose.

* * * * *

Though it should be held that, in the cases considered, I may in some instances have proposed laying out too little money on the works, yet I flatter myself it will be allowed, that, in the plans now preferred, the expence of them is too great by far.

Explanation

Explanation of the Figures.

All except No. 11. 12. 13. 14. 15. are done from a scale half an inch to twenty-five fathoms or toises, fold in the common cases.

In all, the fire from the rampart is supposed to graze the glacis equally.

Fig. 1. 2. and 5. are stated only demi-reveted, and of course those compared with them, if they were stated fully reveted, the objections to them would have still more force : But that seems abandoned of late.

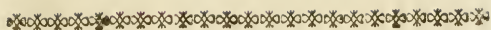
I suppose the places of arms and the covered way occupied very much by cannon, and either on high carriages or in something like the way directed in Saxe's
Reveries ;

Reveries ; a few of these will do more than all the troops it can contain ; but they must be attended by guards, besides those who work them. I have drawn no traverses in the covered way, because, though these must be had when the enemy is at some distance, yet, when he comes so near as that there is some chance of his succeeding in an assault on it, the best defence is, to cast down or carry away the traverses, and withdraw all the people who are above ground.

Fig.

Fig. 1. Great ditch	14 fathom broad	14 feet deep.
Ditch of the ravelin	10	10
Fig. 3. Great ditch	8	9
Ditch of the ravelin	6	7
Fig 2. Great ditch	10	18
Ditch of the ravelin	6	14
Ditch of the lunette	3	10
Fig. 4. Great ditch	6	14
Ditch of the ravelin	6	14
———— lunette	3	10
Fig. 5. Great ditch	14	14
Ditch of ravelin	10	10
———— - counterguard	7	7
Fig. 6. Ditch	7	10
Fig. 7. Ditch	8	9
Fig. 8.	6	12

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FOLARD proposed fighting always in deep bodies, whatever might be the situation, or whatever might be the object, except, perhaps, directly opposite to the enemy's batteries ; and he has been followed by many.

He has been opposed by many more, who have held, that, whatever the situation or the object might be, nothing but thin lines were to be used.

The interest of both parties can seldom be the same.

A man may choofe to push as hard as possible in one part of the front engaged, while, in another, he propofes only to occupy the enemy.

The nature of the ground may make the poffeffion of a poft worth fome lofs or risk.

Of the two parties, the one may be in fuch a fituation, that, if obliged to give ground, he may be pinched for room to rally in, (as King William at Nerwinden) or find it difficult, from the pofition, number, or quality of his troops, (as De La Motte at Wynnendal).

One party may have fuch reinforcements coming up during the action, as makes it his intereft to pafs off the time the beft he can, till they come up, while it is the intereft of the other to decide it before they arrive. The approach of night may make it the intereft of one party to prefs a decifion.

cision, or to avoid fighting in the dark. A part of the one army may be carried off by the enemy, and of course it may be their interest to press the affair; and the enemy's to wait the return of his people*.

On turning his enemy's flank, he may find him more or less prepared.

One party may be more or less surrounded by the other.

One party may be greatly stronger than the other.

There is nothing more dangerous than endeavouring to gain a victory at little risk
or

* This, I imagine, was Hannibal's case at Zama. By the edition I have of Polybius, the cavalry of both wings was carried off at the beginning of the action, and his infantry was more numerous than the enemy's. But as, on this memorable battle, I presume to entertain sentiments different from those expressed by Guischarde, this is not the place to explain them so minutely as is requisite.

or expence ; yet daring measures may be the interest of one party, and actions that decide much.

There is still a great difference between troops and troops ; besides, the strength of one army may lie more in artillery than that of the other.

The incidents in battle are very various,

Recommending one method of fighting in all these different cases to both parties, naturally reminds one of the medicine that infallibly cured the diabetes, and, when fair play was given it, cured the dropsy also.

But truth is the test of ridicule.

Folard collected instances to show that, when the centre of an army was broke, a defeat followed inevitably ; and in fact he showed, that, in the times of which he treated,

treated, the defeat might follow from an opening made in any part of the front.

War is now not quite the same as it was in any of the times considered by him.

Yet it will not be disputed, that if an opening is once made with white arms, a defeat may follow from it. It is more difficult to rally the troops that are broke; those that are not find themselves attacked in flank and front; and those that come up from reserves are more entangled by the runaways. A small blow well followed may give a victory.

Great improvements have been made on Folard's scheme. It has been proposed to make the deep bodies more active; it has been showed that a longer bayonet may be used without inconvenience*; that
they

* With the common bayonet only three ranks can enter

they should be formed at a less distance from the enemy; and Marshal Saxe used a column with great success by feeding it constantly with fresh troops, and supporting it well.

Folard has not explained the use of his second, &c. lines of deep bodies. It is possible that a second line of these coming up after the first was broke, might make an opening. Warnery mentions a case something like this that had oftener than once happened between the Prussian and Saxon cavalry. The Prussians drawn up without intervals, the Saxons with intervals equal to the front of their divisions, so that half their corps made a sort of second

enter into action, and the third of these with not much effect; but still three ranks are no match for six. They cannot reasonably expect to master the six, nor will they expect it; and those in the six ranks know that. This seems trivial; but Vid. the answer made by Guischart (to say nothing of Guibert) to Folard on the impulse of the column.

cond line fronting the intervals of the first. The first line of Saxons were, though they charged briskly, drove off by the Prussians, who were in their turn drove off by the second, half their number. In consequence, the King gave up ranging cavalry *en muraille*. The Prussians were surely better officered, and cannot be supposed worse disciplined.

I venture to propose another method of using deep bodies ; by deep I mean such as are at least six deep, *i. e.* twice the depth of the common line.

Suppose the first line with its artillery formed, and to engage as if such bodies were not to be used *. The deep bodies
to

* I take this opportunity of suggesting what I think are improvements. That, when troops march in line, and do not charge, instead of ranging as in Fig. 1. they should range in some such order as in Fig. 2. This gives a corps more activity, and it seems less exposed to the enemy's

to be made of the second line when and where judged proper, carrying off as they charge that part of the first line opposite to

nemy's cannon. It is true the soldier has more difficulty in keeping his distance than if he were closer to his fellow ; but the Romans, described by Polybius, (V. Guichardt) were ranged still looser ; and if their men be then supposed to have been ranged in quincunx, which increases the activity, it increases also the difficulty of keeping the distance. But that error is in reality of no consequence, in comparison to the advantages gained.

Suppose (Fig. 3.) a line ranged in echelons, which engages another ranged in the same manner. Suppose the echelon A a good deal stronger than B, and that no trifling portion of its excess in front, as *a*. instead of directing its fire on the corps C directly in front, should play upon B. If the interval between B and C, (*i. e. b c*) is considerable, as in Saldern's book, B must visibly break, or waste men in reinforcements, if that will do. If to remedy this, the intervals are made less, then if each echelon is considerable, (as C 2000, men) it will be impossible to confine the engagement for any time, to a short front, if the enemy wishes to engage a long one. The best is, therefore, to make each echelon small, and the intervals small also.

I enter not here into the effect of charges with white arms, or horse on the echelon B.

to their fronts, and they to be supported and fed as circumstances permit.

There is more time bestowed by the Pruffians on what they never praftise in action, than is required to make the manoeuvres of deep bodies as familiar as the others.

The revival of the opinion laid down in Vegetius, that an army ought only to engage on a part of its front, is favourable to this addition.

There is no faying to what a pitch men may be carried by difcipline.

There is no faying how little may ftartle people if it be novelty *.

D d

But

* Consider the actions of Alderne, Killicranky, and Prestonpans, the obscurity of the stage has made them be neglected ; yet the two first were gained over superior numbers of disciplined troops, commanded by respected officers. The army beat at Alderne was from the age the least disciplined of the two ; but its commander, and
many

But the part of an army armed with artillery is now great.

True : But till there is much more order in battle, and fire is greatly improved beyond what it is, it is not yet great enough in all times and places, to stop a body of men who come from one hundred and fifty paces (for instance) some time after an action is begun.

A management of a line has been stated, by which a deep body, it is supposed, may lose so many as not to come up ; but such a line cannot always be had. The advantage of attacking is great. By a similar reasoning, one ought not to try to turn the enemy's flank. Yet the Prussians have showed that, in most situations, it is very prudent to attempt it.

But

many of its officers, had seen deep bodies gradually going into disuse in the thirty years war ; and the remembrance of the thirty years war must have been still fresh at the time of the battle of Killiecranky.

But the part of an army armed with artillery is now great.

True ; but it is not yet great enough in all times and places to stop a body of men who come from one hundred and fifty paces (for instance) some time after an action is begun *.

Warnery has showed, that a column cannot escape being destroyed, if judiciously attacked in flank and front by cavalry, while its front is opposed as usual.

In the first place, this opposition would destroy a line.

In the next place, cavalry is not always at hand when needed.

In

* The revival of the opinion laid down in Vegetius, that an army ought only to engage on a part of its front, is favourable to this addition.

In the third place, the column must be supposed supported. If it is, what comes of *this* attack ?

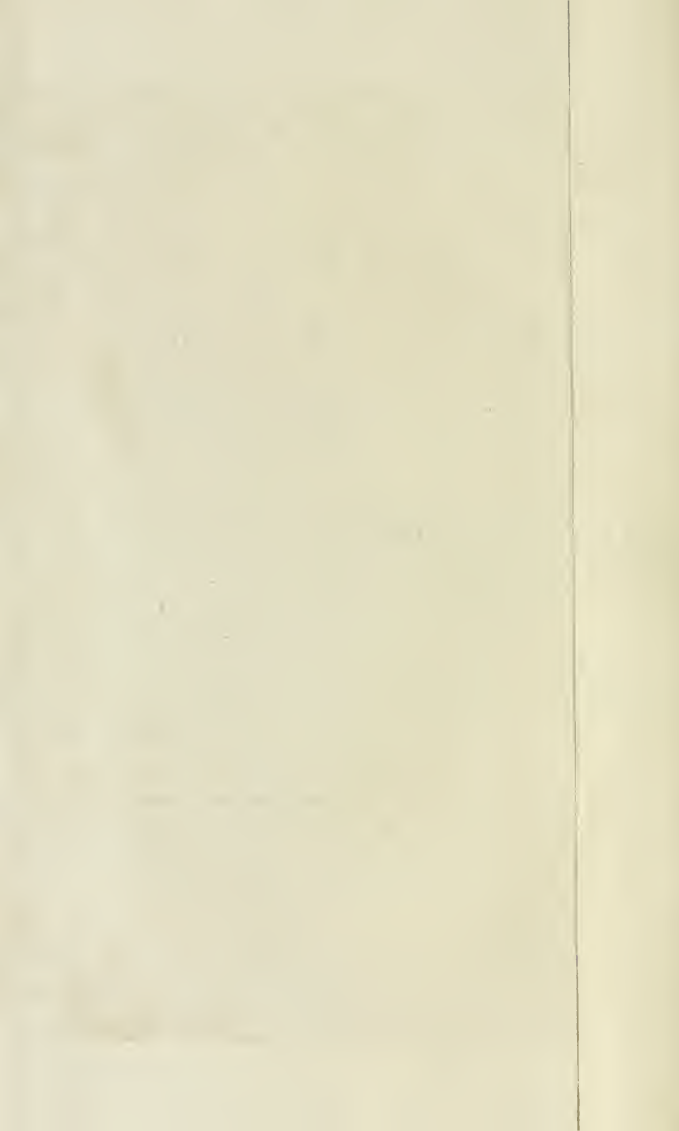
In the last place, he has visibly supposed the column to begin its charge from a great distance.

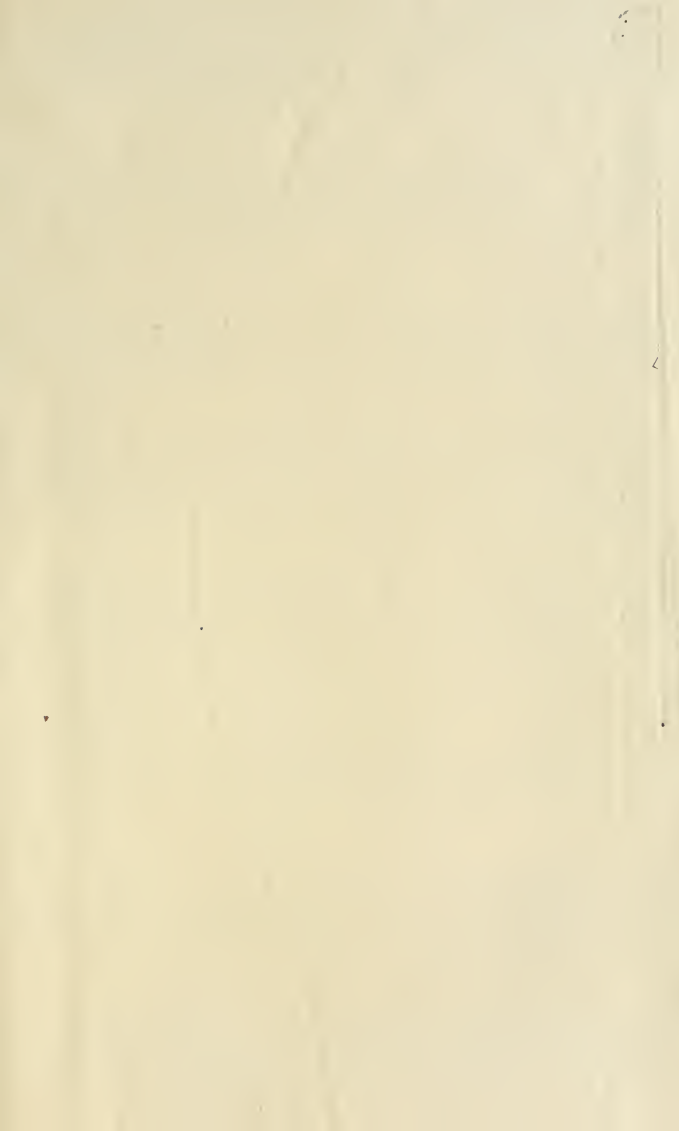
In the thirty years war, when deep bodies went into disuse, the movements of these were very slow. They were formed at the beginning, and presented at a great distance.

On the whole, I cannot help thinking that deep bodies might sometimes be used with success.

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